WEST MARKETING ISSUE
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ICC Measure Would Restrict Activities Of Private Carriers

Senate Bill Curtails Return Load Hauls in Interstate Commerce

WASHINGTON — The Senate Interstate Commerce Committee last week approved and sent to the Senate floor a bill—S.3778—which will have marked effects on the use of private motor truck carriers on transportation of agricultural commodities and other goods as heretofore exempt from Interstate Commerce Commission rate controls.

The effect of this proposed amendment to the ICC act will be to make transportation of commodities, products thereof or goods by a motor truck carrier owned by a private company outside the transportation industry subject to a showing that the movement of such freight traffic in any manner—outside ICC rate regulations—is the primary business purpose of the owner of such a motor vehicle.

This amendment to the ICC act can have sweeping effects on the use of private carriers wherein they may have been engaged in haulage of agricultural commodities in return haul loads in interstate commerce.

This proposed amendment to the ICC Act has broad support from the ICC, the railroads and the trucking associations themselves. However, the amendment will be fought by the association of private carriers whose chief point of contention is that, through return load contracts or commitments, they are able to deliver the products of their company owners at lower delivered costs to the consumers thereof.

Effect of Plant Nutrition on Pest Control Studied

BELTSVILLE, MD.—Work is underway at the Agricultural Research Center here which may uncover information about regulating the kind and amount of fertilizer to use for maximum effect on insects and mites, as well as for a maximum crop.

Preliminary experiments with two-spotted spider mites on pole-lima beans indicate that when plants are supplied with amounts of nitrogen, phosphorus or potassium providing good growth, the mites feeding on these plants are easier to kill with malathion.

Mites also are easier to kill when feeding on plants that have received a low level of phosphorus. But mites are more difficult to kill when too much or not enough nitrogen or potassium is applied.

The U.S. Department of Agriculture said that difference in susceptibility under various nutrient levels may possibly explain reported resistance to insecticides in insects and mites. Perhaps control practices could be timed to take advantage of the seasonal variations in the level of nutrients in the plant, according to USDA.

Thomas Henneberry, ARS entomologist, is in charge of the experiments, being conducted in cooperation with N. W. Stuart, plant physiologist.

Nutrient solutions are applied to the bean plants the first day after potting and twice a week thereafter. Different levels of nitrogen, phosphorus and potassium are being tried independently and together.

With high levels of phosphorus and all levels of nitrogen, irrespective of the potassium levels, the mites are harder to kill. With high levels of potassium and high levels of nitrogen, irrespective of the phosphorus levels,

(Turn to PLANT NUTRITION, page 8)

Plan Advocated to Give Cotton Farmer Choice Between High or Low Acreage

MEMPHIS, TENN. — A program for cotton that would give individual farmers a choice between higher acreage and a lower price or lower acreage and a higher price was advocated in a report to the cotton industry on May 23. The report was issued by the board of directors of the National Cotton Council.

In releasing the report, George G. Chance of Bryan, Texas, board chairman, pointed out that if legislation is not passed the industry faces a cut of more than 20% in acreage allotted for cotton in 1959 —from 17.5 million at present to 14 million.

The board urged adoption of a "choice plan" as a "transitional program pointed toward a competitive, one-price system, coupled with a permanent program under which the price would be at or move to a competitive level as soon as possible."

"It should avoid problems involved in the present law, which fails to take cotton's competition into account," the report added.

All elements of the industry were urged to unite in working with the legislative and executive branches of the government in the enactment of the necessary legislation immediately. The report also urged two other steps:

(1) "In determining marketing quotas and acreage allotments, provision should be made for adequate supplies of cotton both in the U.S. and abroad, with due allowance for the quality requirements of the market and for the large margin of error which is inherent in forecasting production, consumption and exports a year or more ahead. Provision also should be made for increasing estab-

(Turn to COTTON ACREAGE, page 8)

Senate Bill Seen as Legislative Bridge for Pesticide Research

By JOHN CIPPERLY, Croplife Washington Correspondent

WASHINGTON — Congress is preparing legislation on availability of research funds which may be the opening wedge in a pay dirt lode for the formulators in the pesticide industry. Recently the Senate Interior Committee approved a bill which would grant to the Department of the Interior money for research on the effects of the use of pesticidal chemicals on wildlife.

This measure is highly popular with the women's league clubs and lovers of birds, fish and other forms of wildlife and, of course, is not too objectionable in goals to government officials whose obligation is to stamp out destructive pests which impair the production of foods by the farmers of the nation.

Observations by this reporter here have been that all of these sources have a common goal but they are at times walled off from common agreement by sentimental rather than real objections.

Last week Croplife had the opportunity to ascertain some meritorious comments from competent government observers in regard to this measure which is now before Congress.

The chief official comment was to the effect that this measure, if it leads to "good basic research," can be the most constructive influence which has intervened in years. It can be the bridge between the two government agencies which are generally working for a common goal but which have been divided by misunderstanding as to motive and objectives.

This government official replied that "good basic research" meant the opportunity for the formulator phase of the pesticidal chemical industry to present its case—a case wherein it could provide evidence of its ability to produce a chemical insecticide, poisonous in nature, but to which attractants had been added which would draw into its effective periphery destructive insects to fiber and food plants but at the same time be repellent in effect to birds, predator insects and fish or small animals.

Here is a clear statement of ground for common agreement. It is the amphitheatre wherein the protectors of wildlife and game can find a common cause with the persons whose duty it is to protect food and fiber production, at a level which will sustain the food requirements of the population of this nation and our free world allies.

It was pointed out by this government official that sincere objectives of all parties to the controversy over the use of chemical pesticides have resulted in dividing the over-all

Turn to PESTICIDE RESEARCH, page 20)

Super Output Gains In First Nine Months

WASHINGTON—Production of superphosphate and other phosphatic fertilizers during the first nine months (July-March) of this fiscal year totaled 1,820,223 short tons, a gain of 5% over 1,740,440 short tons in a comparable period a year earlier, the Bureau of the Census has reported.

March production amounted to 230,127 short tons, down from 231,218 in March, 1957. Shipments last March totaled 216,857 short tons, compared with 243,691 in March a year earlier. Stocks on hand at the end of March totaled 358,883 tons, up from 321,827 a year earlier.

The March, 1958 production included 123,200 short tons of normal and enriched, 78,624 short tons of concentrated, 16,239 short tons of ammonium phosphates and 12,064 short tons of other phosphatic fertilizers, including wet-base goods.

Inside You'll Find

Co-op to Expand Lawrence, Kansas Nitrogen Plant

LAWRENCE, KANSAS—Plans for major additions to the facilities of the Lawrence nitrogen plant of the Cooperative Farm Chemicals Assn. were announced here May 27.

Total expenditure will be in the neighborhood of 5 million dollars, according to Howard A. Cowden, Kansas City, president, and R. R. Zurbuchen, general manager.

The facilities will enable the plant to increase its anhydrous ammonia production to the extent of 34,000 tons a year. Storage facili-

(Turn to CO-OP, page 20)

Gibberellins Speed Germination, Growth In New Mexico Tests

STATE COLLEGE, N.M. — Gibberellic acid speeded up the germination and growth of fresh peach seeds in experiments conducted by M. B. Jones, New Mexico A&M Experiment Station horticulturist.

Mr. Jones treated fresh peach seeds with various rates of gibberellic acid and got seedlings in about 15 days. Normally, fresh peach seeds lie dormant for 60 to 90 days before sprouting. If the seeds dry out during this period, they won't sprout at all.

This speeded-up germination means that peach breeders can save a year in their breeding program, Mr. Jones said. Bud wood is ready to use within 4 months—about the same length of time it would normally take a peach seed just to sprout.

In his tests, Mr. Jones found that too much of a good thing can have bad effects. When peach seeds get too much gibberellic acid, the seedlings become rosetted, have elongated leaves, and drop terminal buds.

When peach seeds dry out, they usually won't sprout. Early-maturing varieties also have poor germination. By soaking dried seed in gibberellic acid for 2 hours and then planting, Mr. Jones got even better germination than by treating fresh seeds.

Contender bush beans were sprayed with various rates of gibberellic acid (10, 25, 50, 100, and 200 parts per million) when they were about 3 inches tall. Forty eight hours after spraying, treated plants were taller than the untreated beans in this greenhouse test. Four days more and the plants which received heavier applications (50, 100, and 200 ppm.) were more than three times taller than the untreated beans. During the test, treated beans grew as much as 5 inches in 24 hours.

After 21 days, plants which got the heaviest applications (100, 200 ppm.) were no longer bush beans, but looked like pole beans. Plants treated with 25 and 50 ppm. gibberellic acid were taller than the untreated check plants, were stockier, and bloomed 2 to 3 days earlier.

Gale E. Allen Joins Highway Equipment Co.

CEDAR RAPIDS, IOWA — A. F. Clauss, vice president and general manager of Highway Equipment Co., Cedar Rapids, Iowa, manufacturers of spreaders and bulk delivery equipment, announces the appointment of Gale E. Allen as general sales manager.

Mr. Allen is a veteran of almost 30 years service in the manufacturing and retailing phases of construction, agricultural and industrial machinery. As general sales manager, he will be directly responsible for the functions of equipment sales, advertising and the parts division at Highway Equipment Co.

New Farm Store

SAN FRANCISCO — Agricultural equipment and supplies will be mainstays of a new farm, garden and feed store to open in Oakley, Cal., according to Tony Cutino, owner. The store, to be located on the north side of Main Street, opposite 5th and 6th, will be 30 x 30, with a warehouse 200 x 50. It will be open for business in about two months, after remodeling is finished. Mr. Cutino, a resident of Oakley for 15 years, has been in the farm, garden and feed business for the last four years.

SUPPLY STORE

LINDSAY, CAL.—A new garden and farm supplies store began operations here recently. Tony Avila is the owner of the new store which stocks a variety of supplies for the garden and farm.

Fertilizer Gives 3 to 1 Return to Texas Farmer

LAMESA, TEXAS—Bill Weaver of Lamesa makes his living raising cotton on 6,500 acres of farmland in a two-county area.

His operations are so vast that he has two cotton gins, repair shops and has constructed enough housing to accommodate over 1,000 workers. He employs 26 men the year around, but uses hundreds during the hoeing and harvesting seasons.

In the process of integrating his farming operations, Mr. Weaver has stressed higher yields per acre. He is a firm believer in fertilizing, and with his own equipment put down about 160 tons of fertilizer last year. He says that for every $1 spent on fertilizer the net return has been $3.

To condition the land for fertilization, he deep breaks a part of the land each year and spreads cotton burrs to build up the humus. The spreading of burrs and application of fertilizer have raised yields from 40 to 50% the last few years, Mr. Weaver said.

Another innovation that increased the farm's profit was in changing to long staple cotton on the irrigated land. It brings in from $20 to $40 more per acre than the short staple varieties.

Michigan Chemical Names Market Research Manager

SAINT LOUIS, MICH.—Michigan Chemical Corp. here has announced the appointment of Everett E. Klicker as market research manager. He will assist H. Stanley Lawton, vice president of sales and development, in extending the markets for the company's basic chemicals and their derivatives. Mr. Klicker formerly was sales and development manager of the rare earths and thorium division of Michigan Chemical.

Virginia-Carolina Elects Justin Potter Chairman of Board

RICHMOND, VA.—Justin Potter of Nashville, Tenn., was elected chairman of the board of Virginia-Carolina Chemical Corp. at a regular meeting of the board held May 5 in Richmond. Mr. Potter's election followed the resignation of William C. Franklin, Baltimore executive, who had served as board chairman since his election on Sept. 28, 1956.

In submitting his resignation, Mr. Franklin told the V-C board members that he had accepted the position of chairman "primarily to locate a capable management group and to assist in whatever way possible while this new group became familiar with the operations of the company." He added, "feeling that this has been accomplished, I request that someone else assume the duties and responsibilities of chairman and that my resignation be accepted."

Mr. Franklin nominated Mr. Potter as the new chairman and the election was unanimous. The latter was first named to the V-C board on October 29, 1956. He is also chairman of the board of Cherokee Insurance Co. and a director of the Commerce Union Bank, both in Nashville. He is also an executive of Farm and Ranch Magazine.

Mr. Potter was formerly president of the Nashville Coal Company, Inc., and its associated coal mining interest. He is still a large holder of West Kentucky coal lands. The new chairman immediately announced that the board planned no material changes in the company's organization.

OKLAHOMA TONNAGE

OKLAHOMA CITY—March fertilizer distribution in Oklahoma totaled 9,903 tons, the Oklahoma State Department of Agriculture reports.

Dr. Wayne C. Hall

HEADS DEPARTMENT—Dr. Wayne C. Hall has been named to head the department of plant physiology and pathology at Texas A&M College, effective July 1. He succeeds Dr. G. M. Watkins who will become dean of the college's School of Agriculture on that date. Dr. Hall came to Texas A&M in 1949 from the University of Kentucky where he was assistant professor and acting head of the botany department.

Chapman Develops New Cotton Insecticide

MEMPHIS—Chemists of Chapman Chemical Co. have developed a single all-purpose cotton insecticide, according to Robert C. Harnden, vice president of the company's agricultural chemicals division.

The product, "Golden Harvest Super 88," combines the quick killing effect of organic phosphates with the residual kill of chlorinated hydrocarbons, Mr. Harnden said. He said the combination permits a longer time between applications and results in lower cost per acre per day of protection.

"We have believed for a long time that the cost of cotton insect control can be reduced for the grower by the adoption of an all-purpose poison. By a scientific formulation of toxaphene, methyl parathion and DDT, our chemists have developed a single pre-mixed insecticide that is effective on all cotton pests, including resistant weevils," Mr. Harnden said.

Super 88 is produced in spray and dust forms. Chapman has developed a suggested application program. Starting with early-season control of cutworms and thrips, the program is designed to get cotton off to a good start and give complete protection until harvest. The company is offering copies of a bulletin describing Super 88 through distributors in the Mid-South.

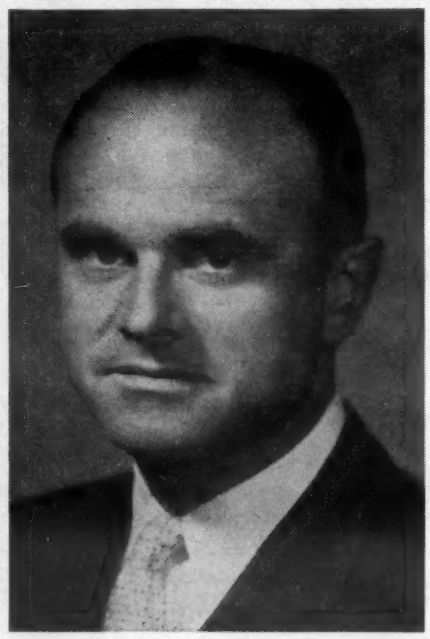
Stock Being Sold

FRESNO, CAL.—Valley Nitrogen Producers, Inc., a farm cooperative formed to establish a fertilizer manufacturing plant, reported nearly 50% of its available stock has been sold. The statement was issued by Don Kemmer, field representative for the cooperative, and Tom Richardson, field secretary for the California Farm Bureau Federation.

JOINS CLEMSON STAFF

CLEMSON—Dr. Paul M. Alexander has recently been named to the Clemson staff as associate plant pathologist, according to an announcement by O. B. Garrison, director of the South Carolina Agricultural Experiment Station. His work at Clemson will be centered mainly on controlling diseases of flowers and ornamentals, with emphasis on Camellia flower blight.

Louis Ware



Thomas M. Ware

IMC Board Names Thomas M. Ware President

CHICAGO—Thomas M. Ware was named president of International Minerals & Chemical Corp. on May 22. This action of the IMC board of directors made Mr. Ware, 39, the fifth and youngest president of the 50-year-old corporation. The new president succeeds his father, Louis Ware, who becomes chairman of the board and chief executive officer.

IMC is the world's largest producer of phosphate and prominent in the mining and processing of potash, feldspar and other industrial minerals.

The new president is an engineering graduate of Cornell University, Ithaca, N.Y., and gained his early practical engineering experience in the aircraft industry. In World War II, he served as a staff officer in the Navy's Office of Research. After the war, he served briefly as a management consultant engineer.

He joined IMC in 1947 as industrial engineer and in the next five years, a period of major company expansion, directed construction of new plant facilities and installations as chief engineer. Elected vice president of engineering, he planned, coordinated and directed a program that streamlined methods in IMC's 72 mines and plants throughout the country.

Since 1955, as administrative vice president, he has centralized and broadened the corporation's staff services including engineering, marketing, purchasing, traffic and mining and exploration. He was elected to the board of directors in 1957 and has had the additional responsibilities of the executive vice president since the retirement of James P. Margeson last June.

Serious Mosquito Outbreak Possible This Year in Washington, Experts Warn

PULLMAN, WASH.—A big mosquito outbreak and a serious encephalitis epidemic could happen again in Washington, and this might be the year.

This worry was voiced here recently by experts attending a Washington State College short course on mosquito control. The session was cosponsored by the college and the State Department of Health.

Dr. M. T. James, Pullman, WSC zoologist, stated that Washington had a serious encephalitis outbreak as recent as 1940. Given a favorable season for mosquitoes, a flare-up of this serious disease-problem of man and animal could recur.

Dr. James said that the long mild winter could mean that a highly favorable season for mosquitoes is in the making. "The encephalitis-carrying mosquito—Culex tarsalis—hibernates or overwinters in the adult stage," he said. "More undoubtedly survived the winter than usual and an earlier and larger buildup of the mosquito population can be expected. A long warm summer favorable to reproduction could mean a severe mosquito infestation, especially in the Columbia Basin, by fall. The Culex tarsalis prefers to feed on birds, but a massive outbreak could force the pests to attack man and animals in their hunger."

Dr. James said that California had 1,200 human cases of encephalitis in the 13-year period from 1935 to 1947. In Washington's 1940 epidemic of encephalitis, 726 horses were affected. An Idaho epidemic in 1935 affected 2,400 horses, he said.

In discussing the role of mosquitoes in disease transmission, Dr. James said the pest also transmits malaria, yellow fever, filariasis and dengue, but that so far only encephalitis is a problem in Washington. The other diseases are confined largely to warmer or tropical areas, he said.

He pointed out that mosquitoes are also an economic problem. He said large mosquito populations will lower the value of real estate, interfere with recreational and resort area use, and damage domestic animals by reducing milk and meat production, and, in extreme cases, killing the animal.

Harry H. Stage, Spokane, entomologist with the State Department of Health, stressed that mosquito control is a community problem. He said the mosquito has no code of honor by which it bites only people who advocate mosquito control. The insect bites anyone within reach.

Mr. Stage pointed out that the "reach" of any given brood of mosquitoes can be a matter of miles. Some species will travel from 10 to 20 miles, he said. The Culex tarsalis breeds in nearly every puddle and pool west of the Mississippi River.

"The pressure of growing mosquito populations makes the insect fly farther, live longer and attack more viciously," he declared.

He warned that "the increased, sometimes improper, use of water in the Columbia Basin has built up a healthy population of Culex tarsalis mosquitoes. With more water used for irrigation as years go by, there will be a great many more mosquitoes from year to year unless something is done about it.

"About 14-million mosquitoes can be produced in an acre of water in one brood. At least 7-million will be females that will bite. If water is 90°, mosquitoes will go from egg to adult in 4 days. The same process takes 12 days if the water is 70°. Life span of the Culex in the summer is from 4 to 6 weeks. Adults that overwinter live up to 6 months," he said.

An all-out attack against mosquitoes to safeguard the state's health and economy was advocated by Mr. Stage. He warned that "tourists, a big-money crop in Washington, will not remain in a mosquito-infested area. The money they would spend in gasoline stations, motels and stores goes elsewhere."

"Preventing just one illness or death from mosquito-borne encephalitis is worth more than the few dollars required to finance control," he declared. He added that residents of the Columbia Basin and elsewhere are already spending many mosquito-control dollars on sprays, horse inoculations and repellents.

New California Firm

SANTA CRUZ, CAL.—West Fertilizer, Inc. is a newly organized firm here owned by Roland E. West. Plans for the plant have not been completed as yet, and equipment is still being purchased. Full operation is expected within the year.

Growth Retardant Produces Shortened Chrysanthemum Stems

WASHINGTON—Many varieties of chrysanthemums of the best form and color may be available in the near future as potted plants, U.S. Department of Agriculture scientists predict. This new prospect for the tall-growing mums is indicated by recent experiments with Amo-1618, a chemical growth retardant. It has been used to produce chrysanthemums with shortened stems but normal-sized blossoms and leaves in USDA greenhouses at Beltsville, Md.

Most chrysanthemums, even the so-called dwarf varieties, have a tendency to be too "leggy" for pot culture. Even when top growth is continuously pinched, the plants grow rank and need extensive staking. This is particularly true of the large-flowered and more colorful varieties.

Using the new growth-regulating compound, Dr. Henry M. Cathey, horticulturist of USDA's Agricultural Research Service, has successfully grown attractive plants of various suitable heights.

No commercial production of plants treated with Amo-1618 has yet been attempted. The chemical itself has been produced so far only in the laboratory for experimental use. It is not in commercial production, although several companies appear interested in the synthesis and potential use of the compound.

The effect of Amo-1618, quaternary ammonium compound, on plant growth was discovered by USDA scientists in 1950. Since then it has been tested on many plants. So far, only a few have proved responsive, including beans, calliopsis, sunflowers, salvia, sesame and chrysanthemums.

DIAMOND PRODUCTS

CLEVELAND—Diamond Alkali Co. here has announced the availability of low volatile six-pound ethyl hexyl esters of 2,4-D and 2,4,5-T to custom applicators of herbicides.

INSECT, PLANT DISEASE NOTES

Corn Borer Damage Expected in Illinois

URBANA, ILL.—In general, overwintering corn borer populations are low; but with borer development a little delayed and the corn crop generally ahead of normal, borer survival may be higher. Thus borer damage may actually be higher than it was last year. Pupation is well advanced in southern Illinois, but no moth emergence is reported to date. In central Illinois pupation ranges between 8 and 30 percent, but farther north, where dry weather is retarding borer development, pupation has barely started.

Pea aphid populations are apparently decreasing in the south and increasing in the western and northern counties. Need for treatment is difficult to determine, since an aphid disease, lady beetles, other predators and wasp parasites of aphids are present and may increase rapidly, holding the aphids in check. Early cutting of advanced fields, with treatment of the new growth after hay removal, may be more feasible than applying insecticides to a heavy growth. In the drier areas, this pest of alfalfa should be watched closely.

Spotted infestations of wireworms, billbugs, and cutworms are being reported on corn 1 to 4 inches tall. To detect the first evidence of damage so that control measures may be applied promptly, farmers should examine cornfields every 2 or 3 days for the next two weeks. As soon as serious infestations are detected, apply insecticides immediately, using one nozzle directly over each row, and cover by using a harrow with the spikes set high or a rotary hoe.

Moderate to heavy armyworm moth flights have occurred in the past two weeks. No larval infestations have been reported, but fields of rank grass and wheat will bear watching for the next two weeks.

There are many infestations of corn flea beetles ranging from 1 or 2 to 12 or more adults per plant less than 4 inches tall. On sweet corn, treatment is probably justified when there is one or more beetles per hill. Field corn is usually not treated unless plants are being retarded.

Potato leafhoppers arrived in central Illinois on May 17. Populations in alfalfa run 20 to 125 per 100 sweeps in central Illinois and 2 to 3 per 100 sweeps as far north as Chicago.

Bean leaf beetle is quite common in many areas of the state and may attack soybeans and garden beans in the seedling stage. Earlier plantings may be most seriously attacked. Small new leaves may be riddled by the feeding. If serious defoliation of seedlings occurs, stands may be materially reduced.

Bagworms feed on a wide variety of evergreens, deciduous trees, and shrubs, often seriously defoliating them. Bagworms winter in the egg stage and hatch in late May in southern Illinois, in early June in central Illinois, and in mid-June in northern Illinois. Trees and shrubs that were infested last year should be examined weekly.—George C. Decker.

Cotton Weather Fine But Insects Threaten

PHOENIX, ARIZ.—Weather continues to be ideal for the growing of cotton plants and cotton is making very good growth in all parts of the state. In the higher elevations of Arizona the cotton thrips continue to be a problem and in some areas spray or dust is in progress. Lygus populations are getting rather high in stub cotton and also there are high populations in cantaloupes and weeds. Stink bugs are also showing up in cantaloupes and alfalfa and are also present in the desert areas.

Very few thrips are showing up in Graham County and not much spraying for them as yet. In these areas the growers should spray or dust regardless of presence of thrips because their damage will be done and control will be too late.

In Cochise County the thrips still continue to be present on unsprayed fields and all growers should have applied at least one application by now. In Pinal County, thrips are injuring some fields and stink bugs and Lygus are very prevalent in many melon fields.

In Maricopa County cotton continues to make excellent progress and blooming of stub cotton is very prevalent. Some Lygus continue in stub cotton numbering as high as 20 per 100 sweeps.

Billbug Causes Losses to Georgia Corn Stands

ATHENS, GA.—Billbug continues to cause heavy losses to corn stands in south Georgia counties.

Heavy infestation of fall armyworm in 40 acre corn field in Lanier County. These insects are going back into ground similar to cutworms. Light infestations of spotted alfalfa aphid on alfalfa in Sumter County, and alfalfa weevil is infesting alfalfa in Taliaferro and Columbia counties.

Moderate infestations of Mexican bean beetle on soybeans in Colquitt County. Heavy infestation on soybeans in Screven County.

Five thousand eight hundred and twelve plum curculio larvae emerged to May 19, from a bushel of peach drops picked up in a commercial peach orchard at Fort Valley. This is a 96.9% infestation. Emergence of the new generation of plum curculio adults from the soil is expected to start in Fort Valley the first week in June, and growers are advised to spray each variety of peaches.

Tomato fruitworm is in light infestation on tomatoes in Colquitt, Mitchell and Thomas counties.

Heavy infestations of vegetable weevil adults on foliage of tomatoes in Barrow County.

Tobacco budworms are present in light to heavy infestations on tobacco in Cook, Colquitt, Mitchell, Thomas and Grady counties, and green peach aphid in light infestations on tobacco in Cook, Colquitt, Mitchell, Thomas and Grady counties.—W. C. Johnson and C. R. Jordan.

Florida Report Shows Stepped-up Pest Activity

GAINESVILLE, FLA.—First eggs and larvae of tobacco budworm (Heliothis virescens [F.]) observed for 1958 season on Dixie shade tobacco at Quincy, Gadsden County. Sixty-four eggs and two first instar larvae found in 1,050 plants inspected.

First eggs of tobacco hornworm (Protoparce sexta [Johan.]) observed for 1958 season averaging 3-4 per plant on 1,000 plants inspected on Dixie shade tobacco at Quincy, Gadsden County.

First specimens of a March fly (Plecia nearctica Hardy) observed in flight in Gadsden County for 1958.—R. E. Woodruff.

Grasshoppers Plentiful In New Mexico Crops

STATE COLLEGE, N.M. — Grasshopper flights have landed in many areas throughout the southern part of the state. Have caused some reduction of tomato stands near Deming, Luna County, otherwise very little apparent damage to crops (Pallidipennis pallidipennis)—about 5-10 per square yard near Hachita, Grant County.

Lygus bugs (Lygus spp.) are very heavy in range weeds and alfalfa in Luna County. Average of 1 adult and 4 nymphs per sweep in alfalfa fields in Socorro County. The pea aphid (Macrosiphum pisi) in moderate to heavy infestations in alfalfa fields of southern counties.

Spotted alfalfa aphid, heavy populations continue to damage seedling and established stands of alfalfa in Chaves, Eddy, Dona Ana, and Luna counties. Only light infestations found in Sierra and Socorro counties. Thrips are very abundant in seedling alfalfa in Dona Ana, Eddy, and Luna counties.—John J. Durkin.

Fruit Pests Active In Massachusetts

AMHERST, MASS.—About 20-25% of the scab spores still remain in the old leaves on the ground and many will be discharged in the next rain. In warm weather, trees outgrow protection in 5 days or less and there will be infection of leaves and fruit if not protected. Showers late in the day or early evening keep trees wet all night and long enough for infection.

Temperature and rate of fruit growth are critical in planning an insect control program for tree fruits at this time. Curculio is moving into orchards slowly; leaf-roller hatching has not started. Except for fast-growing varieties, in earliest locations, peaches and apples are not yet large enough for curculio cutting. Just a few hours of temperatures about 75° will change this picture.

Red mites are abundant in some orchards and should be hit now before summer eggs are laid.

Cabbage butterflies are laying eggs. In locations near the coast and at higher altitudes cabbage maggot is still a threat to all cole crops.—E. H. Wheeler and C. J. Gilgut.

Caterpillars in California Identified

SACRAMENTO — Caterpillars found on alfalfa, clover and barley crops in Glenn County have been identified as the larvae of the painted lady butterfly.

J. E. Swift, agricultural extension service entomologist, has recommended that if heavy infestations are found it would be advisable to dust fence rows with a barrier spray of 10 percent DDT dust.

The butterflies migrate from Mexico in the early spring. The larvae feed mainly on weeds such as star thistle, malva, lupine and nettle.

Numerous Populations in Wisconsin Pest Report

MADISON, WIS.—Pea aphids are now moving from alfalfa to peas in southern counties. This same movement will probably occur soon in other sections if it is not already under way, and fields should be checked in order that timely treatments may be applied to avert the potential threat that now exists.

Spittle masses caused by meadow spittlebug nymphs which are found on stems of alfalfa and in strawberry plantings are generally present in many areas. These masses of spit usually contain several of the young insects which suck juices from the plants. The incidence appears to be greater this year than for the last several. It is reported that some Grant county fields have been treated. Treatments of first crop alfalfa where there are large numbers of this insect may this year be more rewarding, especially since moisture shortage appears to already have reduced the potential yield of first crop hay.

European red mite populations appear to be high for this time of the year in southeastern apple orchards. A blacklight insect trap in the Gays Mills orchard area began to catch newly emerged codling moths on May 14. Both of these orchard pests require treatment.

The six-spotted leafhopper which causes damage to lettuce, carrots and other plants by infecting them with the aster-yellows virus had particularly high populations and caused serious losses in 1957. Normally, the seriousness of the problem is created by migrations of this insect into Wisconsin in spring (April 25 in 1957, and May 11 in 1956) rather than from local populations arising from overwintering eggs.

A Wisconsin survey in Texas and Oklahoma during mid-April indicated spotty populations of the insect in this reservoir, and that their appearance in Wisconsin would be retarded. Another survey during the week ending May 16 showed the northern migration path to lie in a belt west of Wisconsin. The six-spotted leafhopper is currently reported from Nebraska, South Dakota, North Dakota; and Manitoba, Saskatchewan and western Ontario, Canada. High temperatures and strong winds on May 12, carried this migration northwards

FLIES RELUCTANT HELPERS

RENO, NEVADA—The housefly, always the villain in the drama of man's fight against disease, has a new role. It has turned witness for the prosecution, says R. W. Lauderdale, extension entomologist for the Max C. Fleischmann College of Agriculture, University of Nevada. According to a report from the U.S. Department of Agriculture, the housefly is helping to speed up tests of anticancer compounds—drugs that may someday prove effective in controlling cancer in human beings. Houseflies complete their whole life cycle in a little more than 2 weeks. Yet they are physiologically similar to higher animals in many characteristics. This combination makes them useful for quick testing of growth-inhibiting, or anticancer, drugs. With comparatively little space, time, effort, and expense, a supply of 1,000 to 2,000 flies daily can be reared for laboratory use. By contrast, mice and rats normally used for testing growth-inhibiting materials take months of effort in breeding and rearing the animals to maturity. Added to this is additional waiting for slower results. Flies fed milk containing a material to be tested can be dissected, and results observed, after only 3 days; rodents take much longer. This story is another example of how research in agriculture leads to discoveries and progress in other fields, Mr. Lauderdale points out. The work with flies was originated in the Department of Agriculture to find a chemical that would cause sterility in insects. Of 26 antitumor compounds tested thus far on female flies, 15 have shown positive results—that is, ability to inhibit growth of ovaries in the flies. Some of these compounds were supplied by the Cancer Chemotherapy National Service Center of the National Institutes of Health at Bethesda, Md.

at a rapid rate missing Wisconsin. Only a very few have been found, and it appears that the problem will be retarded considerably. Nymphs hatching from overwintering eggs in the state before the migrants appear occur only once in seven or eight years.

Varying amounts of precipitation occurred with the helpful showers of May 17. However, it was generally light followed by drying winds, and a moisture deficiency continues to prevail. Heat growth units are above average. These conditions cause reduced vegetative growth that, in turn, generally reduce milk flow and accentuate crop-insect depredation. In addition, many of the insects have been favored by this weather which increases their population potential.

Tarnished plant bug, Lygus lineolaris, adults are commonly found in what appears to be average numbers in alfalfa sweepings, and nymphs of a less important plant bug, Myris dolobratus, appear in increasing numbers, but apparently nymphs of the alfalfa plant bug, Adelphocoris lineolatus, and the rapid plant bug, Adelphocoris rapidus, have not yet been found. All these plant bugs suck plant juices from alfalfa. It appears that the overwintering adults of the tarnished plant bug come to blacklight insect traps when they first become active in spring and remain with their host plants thereafter. None have been taken in the Middleton trap since the nights of April 16 and 17. The same may be true for the masked hunter, Reduvius personatus.

Apple, Peach Pests Increase in Delaware

NEWARK, DEL.—On apples, scab leaf infection has increased at locations where already present; some scab ascospores still undischarged. Cedar rust leaf infection found. Powdery mildew now active.

Codling moth adults have emerged each day since May 13, with 15 emerging on May 18, 14 on May 19, and 16 on May 20. On peaches, bacterial leafspot infection increasing, constriction disease very active, and no brown rot found. Feeding punctures of plum curculio observed in Sussex County.

Severe alfalfa weevil damage is occurring in unsprayed fields.—Donald MacCreary and J. W. Heuberger.

Damage to Crops Light in Missouri

COLUMBIA, MO.—In general, damage to crops is still very light worms can be found in many fields of small grain, but numbers are relatively light, and the parasite population is high. There is still an outside chance of trouble from armyworms, but the possibility becomes less each day.

Fleabeetles have caused considerable injury to early corn, but the good growing weather during the week has helped many fields to grow away from the insects. If good growing conditions continue, there is little possibility of additional spraying being needed.

English grain aphids are also present in most fields of small grain, but numbers have remained low, and we have not yet seen any fields that are even close to needing to be sprayed. These are the aphids which will be seen feeding on the heads, and they must be present in large numbers before control is justified.

Even though field crop pests are scarce this year, a little of everything is showing up in gardens.

Hornflies are continuing to increase on herds that are not being protected by insecticides. Putting up a backrubber would be a good job for the next rainy day that comes along.

The main thing to keep in mind is that the backrubber must be put in a place where cattle normally loaf. The most common mistake is in not doing this and the cable is not made long enough. To give the best coverage, the cable should be only about 15 to 18 inches above the ground at the low point between the posts, but should be attached about 4 feet up on the posts.

We have had little insect injury to crops so far, but it still looks as though this is going to be a corn borer year. Winter survival was high, and in the central section of the state, about 70 to 75% of the overwintering borers have pupated. It's too early to say definitely when controls should be used, but in the southern part of the state, it will probably be sometime in the first 10 days of June, and sometime between the 10th and 20th of June in the central and northern sections.—Stirling Kyd and Geo. W. Thomas.

Corn Borers, Other Pests In Minnesota Report

ST. PAUL, MINN.—European corn borer (Pyrausta nubilalis) pupation has begun in southern Minnesota. Pupation of overwintering borers reported by districts is as follows: Southeastern, 15%; southcentral, 29%; and southwestern, 28%.

This is based on a total of 170 borers observed. The weekly surveys following the development of this insect will inform the growers when to treat.

Green cloverworm (Plathypena scabra) was found again this past week in all alfalfa fields checked in southern Minnesota. Sweep counts are low with larvae ranging from 1st to 5th instar. Alfalfa plant bugs (Adelphocoris lineolatus) and rapid plant bugs (Adelphocoris rapidus) continue to hatch out in small numbers in southern counties. Tarnished plant bugs (Lygus lineolaris)—counts range from 1 to 12 per sweep in southeastern and southcentral to 0-2 in southwestern districts.

Six-spotted leafhopper (Macrosteles fascifrons) was found in southeastern and southcentral districts with sweep counts 2 per 150 sweeps in alfalfa and 1 per 75 sweeps in grain. Observations made during the week of the 12th at Rosemount showed population of 1-2 per 100 sweeps on winter grain and 2 per 300 sweeps at Mahnomen.

Pea aphids (Macrosiphum pisi) range from 4 to 15 per sweep in southeastern and southcentral districts and 1 to 5 per sweep in southwestern. No spotted alfalfa aphid (Therioaphis maculata) found to date. Army worm moths (Pseudaletia unipuncta)—3 moths in good condition were collected in trap at Duluth on May 15 and one on May 16.

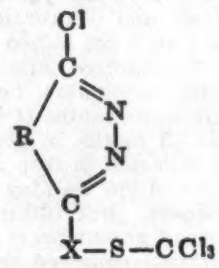
Grasshoppers, first instar nymphs of two-striped grasshoppers (Melanoplus bivittatus) observed on May 20 along ditch banks and road sides in Moorhead area, mostly in southern

(Turn to INSECT NOTES, page 20)

Industry Patents and Trademarks

2,835,626

Process for the Production of New Pyridazine Derivatives and Their Use as Fungicides. Patent issued May 20, 1958, to Alfred Margot and Hans Gysin, Basel, Switzerland, assignors to J. R. Geigy A.-G., Basel, Switzerland. A pyridazine derivative corresponding to the formula:



wherein R represents a member selected from the group consisting of a vinylene, o-phenylene, chloro-o-phenylene and nitro-o-phenylene radical, and X represents a member selected from the group consisting of oxygen and sulphur. A fungicidal composition comprising as active ingredient a pyridazine derivative as claimed in claim 1, in an amount and concentration sufficient to inhibit the growth of fungi, and a fungicide adjuvant as a carrier.

2,835,559

Apparatus for Manufacture of Sulphur. Patent issued May 20, 1958, to Johannes Baehr, Herne, Westphalia, Germany; Elfriede Ella Baehr, Else Mathilde Elisabeth Anna Kroh nee Elisabeth Jeni Bernhard nee Baehr, Anna Mathilde Velten nee Baehr and Ernst Ludwig Baehr, heirs of said Johannes Baehr, deceased. Treating apparatus comprising, in combination, first and second reaction chamber means; first and second discharge passage means respectively connected to, communicating with and respectively forming outlets for said first and second reaction chamber means; first and second liquid-seal means respectively located in said first and second discharge passage means; first and second control means respectively cooperating with said first and second liquid-seal means for changing the level of a liquid at said first and second liquid-seal means between an upper level where said first and second liquid-seal means are respectively closed for respectively closing said first and second discharge passage means and a lower level where said first and second liquid-seal means are respectively open for respectively opening said first and second discharge passage means, said first and second control means being individually operable for opening or closing each discharge passage means; first conduit means leading from said first discharge passage means to said second reaction chamber means for connecting said second reaction chamber means in series with said first reaction chamber means; second conduit means communicating with and leading from said second discharge passage means; by-pass conduit means connected and communicating with said first and second conduit means for leading a fluid from said first to said second conduit means without passing through said second reaction chamber means and second discharge passage means; valve means in said first conduit means between said second reaction chamber means and the connection of said by-pass conduit means with said first conduit means for cutting off or opening communication between said first and second reaction chamber means; and supply means for selectively supplying materials to be treated either to said first or to said second reaction chamber means, whereby operations may be carried on with said first and second reaction chamber means in series or selectively with either of said reaction chamber means while the non-operating reaction chamber means is completely sealed off from the operations.

Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of $25 must accompany each notice of opposition.

Pur-Gam, in capital letters, for insecticidal dust for use in agriculture. Filed Aug. 6, 1957, by Wilson & Toomer Fertilizer Co., Jacksonville, Fla. First use July, 1949.

Dynawet, in capital letters, for emulsifier and wetting agent for use with herbicides, fungicides, insecticides, defoliants, nutrient sprays, and the like. Filed Aug. 19, 1957, by the Dow Chemical Co., Midland, Mich. First use, May 30, 1955.

Sporty, in outlined script letters, for fungicides and insecticides for domestic animals. Filed Aug. 22, 1957, by Orville P. Brink, doing business as Price Chemical Co., West Palm Beach, Fla.

Drop-Tox Bug Killer, in hand-drawn letters with cartoon of bug, for insecticides. Filed Oct. 14, 1957, by C. P. Stephenson, doing business as Stephenson Chemical Co., College Park, Ga. First use April 15, 1957.

Gee Bee, in capital letters, for plant growth substance. Filed Oct. 14, 1957, by Goldwyn Smith, doing business as Goldwyn Smith Co., Tampa, Fla. First use June 8, 1957.

Plans for North Carolina Broadcasts Completed

WASHINGTON—Plans have been completed with North Carolina State College at Raleigh for a state-wide series of tape recorded broadcasts on subjects dealing with soil fertility, soil tests, fertilizer placement, liming, economics of fertilization and related material, Dr. Russell Coleman, executive vice president of the National Plant Food Institute, has announced.

The Institute, which completed arrangements with the college, has provided a $2,000 grant for the project. Speakers for the broadcasts will include Institute members, experiment station and soils department personnel, county agricultural workers, farmers and others.

J. Wayne Phillips Joins Zonolite Co.

CHICAGO—The appointment of J. Wayne Phillips as sales representative for Zonolite Co. has been announced by Robert A. Arnold, manager of the firm's Terra-Lite Division.

Mr. Phillips will cover Ohio, Western Pennsylvania and West Virginia, serving golf courses, fertilizer and agricultural chemical companies and garden supply outlets. The firm mines and processes vermiculite, a mineral soil conditioner and carrier for agricultural chemicals. Mr. Phillips is a graduate of Pennsylvania State University, and was previously with California Spray-Chemical Co. He lives at 603 Worth St., Pittsburgh.

SEE Page 9 . . .

NPFI Committees for Convention Selected

WASHINGTON, D.C. — Chairmen of the various committees which will supervise the special events at the third annual convention of the National Plant Food Institute have been announced by Dr. Russell Coleman, executive vice president of NPFI. The convention will be held at the Greenbrier, White Sulphur Springs, W. Va., June 15-18, 1958.

Mr. and Mrs. Clyde T. Marshall, Commercial Solvents Corp., head the hospitality committee.

Chairman of the ladies' committee which will arrange the garden party scheduled for June 15, is Mrs. John Miller, Louisville, Ky. This committee also will be responsible for other events for ladies at the convention.

C. B. Clay, Cotton States Fertilizer Co., is chairman of the memorial committee. He will present the memorial resolution during the general session on June 17.

Heading the golf committees are Gene Van Deren, Bluegrass Plant Foods, Inc., who will handle men's golf, and Mrs. W. B. Porterfield, Pelham, N.Y., who will be responsible for ladies' golf.

L. L. Jaquier, Phillips Petroleum Co., will chairman the tennis committee.

Chairman of the horseshoe pitching committee is A. A. Schultz, Reading Bone Fertilizer Co. Dr. M. F. Gribbins, E. I. du Pont de Nemours & Co., will be in charge of the skeet shooting committee.

The bridge and canasta party on June 16 will be under the direction of Mrs. Jack B. Snyder, Topeka, Kansas.

Mrs. E. M. Kolb, Ridgewood, N.J., heads the committee in charge of obtaining prizes for the various events.

Odell Godwin

JOINS HAYES-SAMMONS — Odell Godwin has become associated with Hayes-Sammons Chemical Co., Mission, Texas, and Indianola, Miss., as new credit manager, according to an announcement by Thomas B. Sammons, Jr., company president. Before joining Hayes-Sammons, Mr. Godwin managed a Rio Grande Valley citrus nursery company. For the past 15 years he has been associated with the citrus nursery business, agriculture and citriculture operations in the valley.

NEW STORE

STOCKTON, CAL.—A new garden and farm supplies store owned by Fred M. Charles opened here recently. A complete line of seeds, fertilizers, insecticides and gardening tools are on hand in the store.

PLANNERS—Shown above are members of the planning committee of the Southwestern Fertilizer Conference and Grade Hearing, who met recently to plan the 1958 conference. From left to right are Mitt Morehead, Olin Mathieson Chemical Corp., Little Rock; Mrs. Stanley Hackett; Stanley Hackett, Dixie Fertilizer Co., Shreveport; Mrs. N. D. Morgan; Dr. R. L. Beacher, National Plant Food Institute; Mrs. Tom Wright; Dr. Russell Coleman, National Plant Food Institute; Mrs. Mitt Morehead; Tom Wright, Texas Farm Products Co., Nacogdoches, Texas; Mrs. Harold Trammell; Harold Trammell, Farmers Fertilizer Co., Texarkana, Texas; Jimmy Powledge, National Hotels; and Dr. N. D. Morgan, American Potash Institute, Shreveport.

Plans Set for Southwest Fertilizer Conference And Grade Hearing

SHREVEPORT, LA.—The planning committee of the Southwestern Fertilizer Conference & Grade Hearing met in Shreveport recently, and a lively and entertaining program is in store for those who will attend the Southwestern Fertilizer Conference, Buccaneer Hotel, Galveston, Texas, July 16-19. Registration will commence at 1 p.m. July 16 with a reception at 6:30 p.m.

Stanley Hackett, president of Dixie Fertilizer Co., Shreveport, will preside over the morning session July 17. Dr. Russell Coleman, executive vice president of National Plant Food Institute, and Dr. R. L. Beacher, director, NPFI Southwestern Regional Office, will present the Institute program for the Southwest. They will bring recent findings of the survey made in the Southwest and will suggest a plan of action to increase the use of plant food. An address will be given by Clayton Rand, Gulfport, Miss., editor, author, speaker and syndicated columnist. Mr. Rand was recently acclaimed as being one of the ten top convention speakers in the U.S. by the U.S. Chamber of Commerce. He will be introduced by Jack K. Lindsey, International Minerals & Chemical Corp., Shreveport.

The golf tournament will be held during the afternoon of July 17 with Bob Linderman, International Minerals & Chemical Corp., serving as chairman. The evening festivities will be concluded with a banquet and a dance.

Dr. J. F. Fudge, Texas state chemist, will conduct the annual grade hearing Friday morning, July 18. Control officials from Arkansas, Louisiana, New Mexico, Oklahoma and Texas will participate. An industrial tour of Galveston is arranged during the afternoon. Saturday, July 19, will be set up for those wishing to go deep sea fishing, boating and golfing.

Specialists Conduct Fertilizer Tests on Michigan Muck Soil

VICKSBURG, MICH. — "This," grinned Merritt Harper as he climbed down from the tractor for the third time in the same row, "is an awful slow way to plant corn."

Mr. Harper, Kalamazoo County assistant agricultural agent; Richard Bailey, Michigan State University muck soils specialist, and Robert Lucas, a MSU graduate student were in the midst of planting a test plot of hybrid corn.

The test on Mr. Harper's farm southeast of here is designed to show the effect of various types of fertilization on 12 hybrids, including a special "dwarf" designed for muck land.

Mr. Lucas says more muck is being planted to corn every season in Michigan. Farmers know that corn can follow corn on muck with little loss in yield, providing proper fertilizing practices are followed, he says. Mr. Lucas says the southwest Michigan muck farmer can obtain a yield of around 120 bu. an acre.

Muck is easy to till, also has a good capacity for retaining moisture. Its disadvantages for corn include a lodging problem and susceptibility to frost. Mr. Lucas hopes the dwarf hybrids will provide an answer to the lodging problem. Frost, he says, must be lived with.

Mr. Harper's muck land is typically flat, rich-looking and productive. Despite an unfavorable season last year, he averaged 75 to 80 bu. an acre. He has recorded more than 140 bu. an acre on some sections of it. Soil tests showed it to be nearly neutral, with a pH of 6.8 to 6.9 The standard fertilizer used on the Harper test plot is 5-20-20 at the rate of 300 lb. an acre. Boron and manganese, which Mr. Lucas says are important on slightly acid muck soils, are added at the rate of ¾ lb. and 6 lb. an acre, respectively.

Test 1 is at the above rate. Test 2 involves the same as test 1 plus 180 lb. of actual potash an acre. Test 3 involves test 2 plus 100 lb. of actual phosphorus an acre. Test 4 includes all materials in test 3, along with 50 lb. each of actual copper sulphate and actual zinc sulphate an acre.

All seed is treated with lindane and Arasan. 2,4-D ester is being sprayed on almost all the area for weed control. About an acre is being treated with the new chemical Simazin. The fertilizer trials are replicated six times in various locations.

Researchers Find Oats Resistant to Crown Rust

WASHINGTON—Eleven strains of cultivated oats that carry genetic resistance to one of the most virulent of five new races of crown rust menacing the nation's oat crop have been discovered by U.S. Department of Agriculture scientists.

These strains are known to have resistance to Race 264 crown rust and may also prove resistant to other new races. Their discovery, say USDA oat specialists, considerably brightens the outlook for development of commercially suitable resistant varieties during the next few years.

DELAWARE INSECT GUIDE

NEWARK, DEL.—A guide to insect and allied pests of the state has been released by the Agricultural Experiment Station at the University of Delaware, Prof. Donald MacCreary, acting chairman of the department of entomology, announces. The non-illustrated 87-page publication lists vegetable, fruit and field crops planted in the state and the pests that attack them. In many cases, major and minor pests are listed and discussed. Included in the publication is an index to plants and one to insects. No control recommendations are made.

Gains Predicted In North Dakota Fertilizer Consumption

FARGO — North Dakota farmers and ranchers may be using over 250,000 tons of commercial fertilizer per year by 1965 if use continues to grow at the rate it has in recent years.

In a review of past and estimated potential use of fertilizer in North Dakota, Vergil Weiser, North Dakota Agricultural College Extension Service soil specialist, and Dr. E. B. Norum, soil scientist for the North Dakota Agricultural Experiment Station, cite fertilizer use in the state of 1,000 tons in 1939 and 3,300 tons in 1945. In 1951 the tonnage had grown to 20,810 tons; in 1953, 41,158 tons; in 1955, 58,693 tons, and in 1957 to 98,935 tons.

Most of the growth in fertilizer use has occurred since World War II. Specialty crops such as sugar beets and potatoes received most of the fertilizer in the early years of use. Some expansion in use has been due to higher rates of treatment and use on more acres of these specialty crops. However, the major part of the increased use in recent years has been on small grains, corn, and other common farm crops grown statewide, it is reported.

Fertilizer ratios and grades recommended for small grain crops grown on summer fallow, such as superphosphate and the fertilizers with a relatively high phosphate to nitrogen ratio, make up nearly 60% of the total tonnage used.

Fertilizers that contain about equal amounts of nitrogen and phosphate for small grain crops grown on non-fallow land comprise about 25% of the total fertilizer used.

Straight nitrogen fertilizer materials should also gain in usage, NDAC researchers believe, as they can be applied in the fall to supply most of the nitrogen needs.

Adds Garden Center

LEVELLAND, TEXAS — A new garden center has recently been added to the Farm and Ranch Store which is owned by Leon Ranson. He is handling all types of shrubs and trees, plant food, insecticides and garden and lawn supplies. Mr. Ranson added an extension to his building to make room for the new garden center. Mr. Ranson, a native Texan and former county agricultural agent, bought the business in 1945 and has expanded it over the years.

New Mexico Shipments Decline in First Quarter

STATE COLLEGE, N.M.—Shipments of commercial fertilizer into New Mexico during the first quarter of 1958 were 14% under shipments into the state in the corresponding quarter during 1957, according to R. W. Ludwick, chief of the feed and fertilizer control division of the State Department of Agriculture.

Showing the greatest decrease was 45% superphosphate. Shipments for the first quarter of 1958 were down about 45% from the previous year. However, 46% superphosphate shipments in the first quarter of 1958 more than tripled the amount received in the state the first quarter of 1957.

The following tabulation shows the tons of the principal commercial fertilizers shipped into the state during the first quarter of 1958 and the tons received in the state during the corresponding quarter in 1957.

	1958	1957
Anhydrous ammonium	640	1,034
Ammonium nitrate	619	481
Ammonium sulphate	1,228	1,720
46% Superphosphate	2,255	740
45% Superphosphate	2,874	5,415
20% Superphosphate	4,058	5,353
16-20-0	1,322	1,209

IMC Launches New Fertilizer Mixer Service Program

CHICAGO—Organization of a complete set of customer services designed to help its fertilizer manufacturer customers to merchandise their products, was announced May 27 by International Minerals & Chemical Corp. The program, which will be conducted through the firm's sales organization, is known as "Full Orbit Services," to provide fertilizer mixers with broad information on how to conduct dealer meetings, how to carry on advertising on local levels, technical service, and data on transportation problems as related to the fertilizer industry.

The program was based on a survey taken among fertilizer manufacturers in all geographic regions east of the Rockies, according to A. E. Cascino, IMC vice president in charge of marketing, who addressed a group of press representatives at a luncheon on May 27. "The program is unique in the fertilizer industry," he said, and added that it puts emphasis on helping the manufacturer to sell more of his product and also provides him with cost-cutting help in production, accounting, and in other areas.

In explaining the various facets of the program, Mr. Cascino said that IMC customers will be given detailed information and instructions on how fertilizer manufacturers can analyze markets to realize full sales potentials, how they can choose salesmen and train them, and increase the general sales power.

A set of manuals has been prepared for IMC's fertilizer manufacturer customers, covering areas in which greater knowledge is needed. These booklets, it was emphasized, will be distributed only by IMC salesmen who can discuss the topics with the customer.

In his introductory remarks at the press conference, Mr. Cascino reminded the group that industrial selling presents different problems from those involved in selling consumer goods. In the former case, the sales message is directed to masses of people who know nothing of the technical aspects of a product and the emphasis thus is placed on its utility or in some instances, on a glamorous angle.

When selling industrial materials to a relatively limited and intelligent group which knows the specifications and other basic characteristics of the product involved, a different approach must be followed. Yet, he went on, people are people whether they are purchasers of chemical products or of tooth brushes. Better sales are made if the buyer can be stimulated to see more than the actual product itself, and to realize that additional factors enter into the picture.

Mr. Cascino explained that the idea of "Full Orbit Service" has been in the making for many months, and is expected to develop further.

Some thirty salesmen from the company's phosphate minerals, phosphate chemicals and potash divisions were given a full three-day training program on the new services being inaugurated by IMC. The sales group met at the Sheraton Hotel here May 26-28.

COTTON ACREAGE

(Continued from page 1)

lished allotments by administrative action in the event a quality shortage should develop after an allotment has been announced.

(2) "Farmers should be permitted, under reasonable regulations, to transfer allotments within a county or state under a rental or purchase agreement."

The board in its report pointed out that the delegate membership of the council in January urged an "immediate increase in cotton acreage in 1958 sufficient to produce adequate supplies of all qualities of U.S. cotton needed to meet the requirements of our customers both at home and abroad."

The delegates had called for adoption of a long-range price and production program that would move as rapidly as possible toward: (1) expanded production and consumption of U.S. cotton; (2) competitive prices for U.S. cotton; and (3) a one-price system for U.S. cotton that maximizes the use of normal trade channels and minimizes the role of government in cotton marketing.

In its report the Cotton Council's board of directors declared:

"Despite most strenuous efforts on the part of the industry and many cotton belt congressmen and senators, an increase in cotton acreage in 1958 was not obtained, due primarily to complications arising from the soil bank program.

"With regard to 1959 and thereafter, substantial progress has been made by producers and other segments of the cotton industry, as well as by congressional leaders from the cotton belt, in developing approaches generally in line with the objectives set forth in the Phoenix resolution.

"The council's board of directors has carefully reviewed all these developments; and in addition has appraised the extremely critical situation which inevitably will confront the cotton industry if action is not taken by the present Congress to meet this crisis. Without adequate legislation this year, cotton faces further major declines in its markets and a resurgence of its competitors, both in this country and abroad—developments that unquestionably will mean drastic and permanent losses to the U.S. cotton industry."

PLANT NUTRITION

(Continued from page 1)

the mites are likewise harder to kill. These and other interactions require further study, USDA said.

Researchers are also carrying out investigations in which mite susceptibility will be measured in relation to plant-growth variation produced by temperature and light treatment.

Japanese Export

TOKYO—A contract for the export of 24,500 tons of ammonium sulphate to Indonesia recently was concluded by the Ammonium Sulphate Export Company of Japan. This is the first time since World War II for such an export from Japan to Indonesia.

Special Merchandising Section

Better Selling

Marketing News and Features

Western U.S. Farmers' Attitudes Toward Fertilizer

EDITOR'S NOTE: The accompanying summary and analysis are the fourth in a series prepared by the National Plant Food Institute, Washington, from a study by National Analysts, Inc., Philadelphia, a consumer research organization. The complete study covers the U.S. as a whole but results have been tabulated on a regional as well as national basis. States included in the western region are: Washington, Oregon, Idaho, California, Arizona, New Mexico, Utah, Nevada, Wyoming, Colorado and Montana. The sample was limited to farmers operating more than 100 acres of farm land, accounting for 92% of the total U.S. farm land. Previous issues of Croplife carried summaries of eastern, southern and midwestern regions. The fifth and final summary (of the Southwest) begins on page 18 of this issue.

The following study clearly defines both positive and negative motivating factors involved in farmers' attitudes toward the use of fertilizer in Western U.S.

Positive factors—that is, those which tend to influence a farmer to use fertilizer at most profitable rates include personal experience, experience of neighbors, soil tests and recommendations, recommendations by agricultural experts, recommendations by dealers, farm demonstrations and experimentation and published or broadcast information in mass media.

Negative motivating factors—that is, those which must be overcome if farmers are to be influenced to use fertilizer at most profitable rates include the belief that fertilizer isn't needed, lack of money or credit (real or psychological), fear of adverse effects, lack of knowledge about fertilizer, inability to understand and interpret much published information, pessimism about the future of farming and lack of definite plans for economic improvement.

The reader is warned, however, that to make use of the above listing of influence factors out of context without first making a careful study of the following analysis, may lead to misleading or totally erroneous conclusions.

The purpose of this presentation is:

To summarize the most significant results of the study of the Western region,

To indicate how the results can be used by the NPFI and others to guide their promotional efforts, and

To acquaint the industry with the information contained in the report.

Significant differences occur in some cases from region to region. The characteristics of Western farmers are somewhat different from those of farmers in other regions, but the study shows that they are in most cases subject to the same motivating factors.

Level of fertilizer use was considered important as a means of classifying and analyzing replies. After the interviews were completed, each farmer in the sample was classified as to level of fertilizer use by a group of specialists who were well acquainted with local farming conditions. Classifications were high, medium, low or none. High-level users were considered to be using fertilizer on the selected crop at rates approaching recommended levels. A farmer was classified as a "non-user" if he did not use fertilizer on the crop selected for detailed questioning (usually one of the two most important crops grown on the farm). He may have used fertilizer on other crops and about 11% did so.

Characteristics of farmers in one level-of-use group frequently were quite different from those of farmers in the other groups. These differences will be noted where they are significant.

What are the general characteristics of the average Western farmer (who operates 100 acres or more)?

Age—One-half are 50 years old or older. Only 21% are under 40 years of age.

Education—Although 37% have only a grade school education or less, 62% have attended high school and 16% college. The average Western farmer is better educated than the average farmer in other regions. Possibly as a result of this, he tends to take more of a business approach to farming.

Size of farm—69% operate 220 acres or more.

Financial status—The average Western farmer is a substantial businessman; 71% reported capital investments of $35,000 or more, the highest average capital investment of any of the five regions.

Outlook—He generally is pessimistic about the future. About 50% think "things" will get worse. Only about one-fourth believe "things" will get better.

Plans for the future—Only a slight majority, 52%, have definite plans for increasing income during the next five years. The use of more fertilizer was given as one of the principal plans for improving income.

Characteristics of high-level fertilizer users are somewhat different from those of non-users. The high-level user—

Is younger—45% are under 40 years of age compared with only 21% of non-users.

Has a better education—76% have attended high school and 44% have at least some college training. Only 56% of non-users have attended high school and 15% college.

Has a higher income—91% reported gross incomes of $10,000 or more as compared with 36% of non-users.

More frequently uses irrigation—96% of high users irrigate as compared with only 48% of non-users.

Has a bigger capital investment—95% or more reported capital investments over $35,000 as compared with 61% of non-users.

Makes more money per acre—an average of $121 per acre gross income as compared with $48 for non-users and the regional average for all farmers of only $59.

What, in the opinion of the average western farmer, are the characteristics that mark a "really good" farmer? In the West, the answers to this question depend to a large extent upon whether or not the farmer has used fertilizer, as shown in the table below.

Selected practices*	Relative ranking High user	Non-user
He uses more fertilizer per acre	1	4
He works harder and longer...	2	5
He has more fertile land to begin with	3	1
He uses better crop rotation methods	4	3
He cultivates more land	5	2
He gets a higher yield per acre	6	7
He pays more attention to soil erosion problems	7	8
He uses better quality seed ...	8	9
He has more machinery	9	6

*Those interviewed were asked to name one or more of these practices.

That fertilizer enjoys considerable prestige with its customers is indicated by the fact that high users give the use of more fertilizer per acre the highest rating as the mark of a "really good" farmer. Non-users, on the other hand, more often name "apology" factors such as "more fertile land to begin with," and "he cultivates more land."

This listing of practices presents in broad outline a farmer's ideal of a "really good" farmer. Advertising, promotion and sales programs which recognize and take advantage of a farmer's concept of what is good or ideal are more likely to succeed than those which ignore these beliefs. The high rating given fertilizer indicates an exceedingly favorable climate for promoting fertilizer.

What is his attitude toward commercial fertilizer?

He is more likely to think of fertilizer in terms of increasing crop yields than as a means of cutting unit production costs and increasing profits.

He tends to think of an investment in commercial fertilizer as a financial risk with uncertain benefits. Fear of adverse effects often has marked influence upon level of use.

About half of all farmers mentioned bad effects when a rate of use approaching experiment station recommendations was suggested. About one eighth thought the effect would depend on weather conditions or some other variable. Burning out of crop and waste of money were mentioned most frequently as bad effects. He says he would use only slightly more fertilizer than he now is using if he had "plenty of cash available and wanted to get the best investment for his time and money."

He would prefer animal manure ... IF unlimited amounts were available. (But, half of the high-level users prefer commercial fertilizer.)

He has definite beliefs about the relative advantages of commercial fertilizer and animal manure.

Commercial Fertilizer

Easier, quicker to apply.
Soil needs can be supplied accurately.
Increases yield.
Gives plants quicker start.
Always available.

Animal Manure

Conditions the soil.
Lasts longer in soil.
Makes better, healthier crops.
Cheaper.
Knows results through experience.

He lists cost as the chief disadvantage of using commercial fertilizer, but 16% of those who prefer commercial fertilizer said it was harmful to the soil.

The average western farmer's knowledge about fertilizer is surprisingly limited.

Eighty three percent of all farmers say they know the plant food elements their soil needs, as shown in the following table:

Plant Nutrient	%
Nitrogen	28
Nitrogen and phosphate	27
Nitrogen, phosphate and potash	10
Phosphate	10
Potash	1
Other	6
Don't know	17

But—77% gave wrong or partially wrong answers when asked to choose grades which would correct specified plant food deficiencies. (Table below shows farmers' answers to a question which asked them to choose among four grades of fertilizer to correct (a) a nitrogen deficiency, and (b) a potash deficiency.)

	All farmers %	High-users %	Non-users %
Both answers right.....	23	40	13
Both answers wrong ...	68	28	80
One right, one wrong .	9	12	6

Therefore — the average western farmer doesn't seem to understand clearly the meaning of analysis, grade or ratio, and seems to know less about these subjects than farmers in other regions.

Although only 10% of western farmers thought their soils needed all three primary plant nutrients (nitrogen, phosphate and potash), the ma-

(Turn to ATTITUDE, page 15)

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

Farming in the productive Imperial and Paloverde valleys of Southern California is a specialized and expensive business. Here in the hot lowlands where winter is a stranger, insects thrive the year around. Heavy applications of insecticides are needed, which means that the men who help farmers with control problems must be specialists.

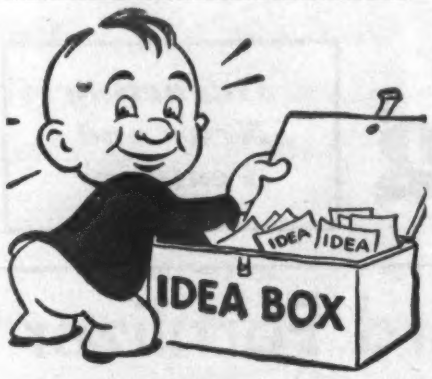
One such firm is 12-year-old Sargent Pest Control Service, Blythe, Cal. Owner Bill Sargent has been here so long that farmers can scarcely remember when his planes were not flying over the irrigated valleys.

The firm has seven Piper Cub planes especially adapted for crop dusting. One innovation Mr. Sargent has added is the use of plated wing tips. This means a strip of metal at the end of the wings runs at right angles to the wing itself. This keeps the dust from drifting off to either side and damaging other crops. It helps concentrate the poison on the rows below and enables a pilot to get a full 90-ft. swath with the chemical dust.

"Those plated wing tips cut down the risk of drifting poison," says Dave Hibbert, assistant manager.

The company works up and down the Colorado River all the way from a point 50 miles north of Blythe down to Yuma near the Mexican Border. Last year the firm covered over 170,000 acres with its planes, and expects

(Turn to OVER THE COUNTER, page 13)



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6744—Soil Fumigant

Information about the use of "Mylone" soil fumigant which has been granted federal label acceptance by the U.S. Department of Agriculture for pre-planting use on seed beds of certain vegetables is available. The manufacturer of the product is Union Carbide Chemicals Co., Division of Union Carbide Corp. The product formerly was available for use on vegetable seed beds only on an experimental basis. It is now commercially available to growers for pre-planting treatment of tomato, pepper, cabbage, egg plant and lettuce seed beds, the company states. Check No. 6744 on the coupon and mail it to Croplife to secure details.

No. 6745—Hose Swivel Bulletin

A 4-page bulletin (F-43) describes the line of hose swivels manufactured by the Jordan Corp., Industrial Sales Division, OPW Corp. The bulletin includes cut-section illustrations, product specifications, application information and other descriptive data. The hose swivels provide free, flexible movement in hose and piping systems, the bulletin states. Check No. 6745 on the coupon and mail it to secure the literature.

No. 6746—Fertilizer Packaging

The use of a full overlap-flap die-cut box for fertilizers and other bulk-pack products is described in information released by the Hinde & Dauch Paper Co. The method has been found successful in packaging 25-lb. packages of fertilizer and it is said to prevent sift and provide a convenient carrying handle. Secure details by checking No. 6746 on the coupon and mail it to Croplife.

No. 6747—Systemic Herbicide

A folder describing "Amino Triazole" weed killer, a systemic herbicide for perennials, has been prepared by the American Cyanamid Co. The folder states that the product kills Canada thistle, sow thistle, quackgrass, poison oak, cattails, Bermuda grass and various other weeds and grasses. The product also destroys the roots, the folder explains. Instructions for use are included in the folder. Secure it by checking No. 6747 on the coupon and mailing it to Croplife.

No. 6748—Booklet on Materials Handling

Under the title "7 Ways to Cut Costs," a booklet recently published by the Frank G. Hough Co., explains how material handling methods are developed through the versatility of a single machine. The booklet "demonstrates the utility value of interchangeable front end attachments on Payloader tractor-shovels," the company states. Action pictures demonstrate the material handling assignments that can be made to apply to seven attachments. Condensed specifications for two models are included. A free copy of the booklet is available by checking No. 6748 on the coupon and mailing it to Croplife.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6011—Boom Truck

Details of a new type of boom truck, the "Hydro-Boom," have been announced by the Vanguard Engineering Co. The boom moves in all directions and is available in hand-operated or battery-operated models with or without power propulsion. Check No. 6011 on the coupon and mail it to secure details. Please print or type name and address.

No. 6016—Bulk System

"Kaiser Nest-A-Bin"—a product of the Kaiser Aircraft & Electronics Division of Kaiser Industries Corp., is described as a bulk handling and storage system for liquids and granulars in the feed, grain and other industries. The bins have a storage capacity of 77 cu. ft. Eight empty bins can be nested in the same cubic space occupied by one full bin. Secure details by checking No. 6016 on the coupon and mailing it to this publication. Please print or type name and address.

No. 6005—Fork Lift Truck

High stacking ability, plus easy access to low headroom areas, are claimed for the model 460 "Towmotor" fork lift truck equipped with "Triple Lift Mast." The manufacturer, Towmotor Corp., states that "Mast's" over-all lowered height of 71 in. permits safe entry into rail cars and low-ceilinged storage areas. The maximum lift is 144 in. Check No. 6005 on the coupon and mail it to secure details.

No. 6015—Pick-Up Lift

The "Express-O-Lift," a hydraulically operated pick-up lift gate designed specifically for ½- and ¾-ton pick-up trucks with express-type

bodies is a new addition to the lift gate line manufactured by the Anthony Co. The unit will raise or lower loads up to 800 lb. from a truck, it is claimed. The unit can be bolted to the truck body in place of the tail gate. A small electric motor drives the hydraulic mechanism. Check No. 6015 on the coupon and mail it to secure details. Please print or type name and address.

No. 6739—Advertising Mats

Advertising mats made up for dealers who want to advertise in their local newspapers certain farm and orchard chemicals manufactured by the U.S. Rubber Company, Naugatuck Chemical Division, have been prepared. Information about the mats may be obtained by checking No. 6739 on the coupon and mailing it to Croplife.

No. 6738—Seed Treatment Data

A comprehensive 54-page book which describes the properties and uses of seed treating compounds has been published by Corn States Hybrid Service. It contains a compilation of article reprints which detail the results of experiment station studies of seed treatments conducted throughout the country. The treated seeds were tested in cold test chambers, greenhouses, seed fields and on farms. Also included in the publication are descriptions of the various formulations now available and the treatments recommended for control of fungi, smuts, seed decay and seedling blight. Specimen labels for each formulation are bound into the book. Secure the book by checking No. 6738 on the coupon and mailing it to Croplife. Please print or type name and address.

No. 6725—Front-End Loader

The Frank G. Hough Co. has announced production of an entirely new "Payloader" model, the H-25. It

is a rubber-tired front-end loader with rated carrying capacity of 2,500 lb. It can be operated out of boxcars having 6-ft. doors. Company officials say that is has a different frame, wheels, axles, transmission, torque-converter, styling, bucket design, electrical system, hydraulics, brakes, engine, differential, etc., than other "Payloader" models. The unit has a 12-volt electrical system. Check No. 6725 on the coupon to secure details. Please print or type name and address.

No. 6741—Rotary Driers, Coolers

Fertilizer Engineering & Equipment Co., Inc., has available drawings showing construction and operating features of its rotary driers and coolers. The drawings are in an 8-page bulletin which describes features of the units such as auxiliary controls and safety systems. Check No. 6741 on the coupon and mail it to Croplife to secure the bulletin.

Send me information on the items marked:

- ☐ No. 6005—Fork-Lift Truck
- ☐ No. 6011—Boom Truck
- ☐ No. 6014—Truck Hoist
- ☐ No. 6015—Pick-Up Lift
- ☐ No. 6016—Bulk System
- ☐ No. 6725—Loader
- ☐ No. 6737—Leaflet
- ☐ No. 6738—Seed Treatment
- ☐ No. 6739—Ad Mats
- ☐ No. 6740—"Nurse" Tank
- ☐ No. 6741—Rotary Driers
- ☐ No. 6742—Irrigation Guide
- ☐ No. 6743—Trailer Sprayer
- ☐ No. 6744—Soil Fumigant
- ☐ No. 6745—Hose Swivel
- ☐ No. 6746—Packaging
- ☐ No. 6747—Herbicide
- ☐ No. 6748—Materials Handling
- ☐ No. 7010—Insect Calendar
- ☐ No. 7019—Sewing Guide

(PLEASE PRINT OR TYPE)

NAME .....

COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS PERMIT No. 2 (Sec. 34.9, P. L. & R.) MINNEAPOLIS, MINN.

BUSINESS REPLY ENVELOPE
No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67

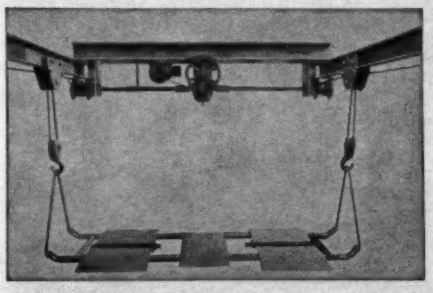
Reader Service Dept. Minneapolis 1, Minn.

No. 6740—"Nurse Tank" Transport

General Metals, Inc., is now in production on a new trailer-mounted 1,000-gal. "Nurse Tank" transport. The transport is designed for hauling nitrogen solutions and liquid fertilizers from storage tanks to the farm and out to the field. It serves as a source of supply for trailer or tractor applicator units and is used in putting the solutions on the field. The unit is especially designed for nitrogen solutions, and may also be used for transporting insecticides, weed killers and other liquid products. The transport can be backed as easily as any farm trailer and can be turned as short as any car, it is claimed. The transport unit consists of trailer, saddles, tank, fittings, hose, gauges, air compressor, front end jack, trailer hitch and all necessary equipment. Check No. 6740 on the coupon and mail it to secure details. Please print or type name and address.

No. 6014—Truck Hoist

The Triumph Division of the C. O. Bartlett & Snow Co. has added a



heavy-duty truck hoist to its line. The hoist is available in three standard sizes having gross vehicle weight inclined dumping capacities of 15,000 lb., 25,000 lb. and 37,500 lb., respectively. The hoisting mechanism is stationary. The design leaves the center area of the driveway clear so the cab of a truck can be lifted up between the I-beams if necessary. The hoist's motor is totally enclosed. Check No. 6014 on the coupon and mail it to secure details. Please print or type name and address.

No. 6742—Irrigation Guide

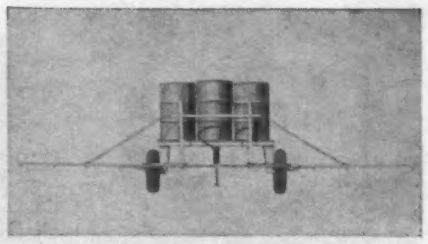
An irrigation performance guide slide rule has been prepared by the Buckner Manufacturing Co., Inc. The guide relates such factors as spacing of sprinklers, precipitation rate, total gallons per minute, number of sprinklers, nozzle size, pressure psi, pipe length and pressure drops. Instructions for use are printed on the guide. Check No. 6742 on the coupon and mail it to Croplife to secure details.

No. 6737—Range Fertilization Leaflet

A leaflet entitled "A Report to California Ranchers" presents case histories of California range demonstrations. The report was prepared by Balfour, Guthrie & Co., Ltd. and describes field operations carried out by the company, individual ranchers, soil conservation districts and California State Polytechnic College. Results showed a $16.99 average increase in profit per acre, the leaflet states. Check No. 6737 on the coupon and mail it to secure the leaflet.

No. 6743—Trailer Sprayer

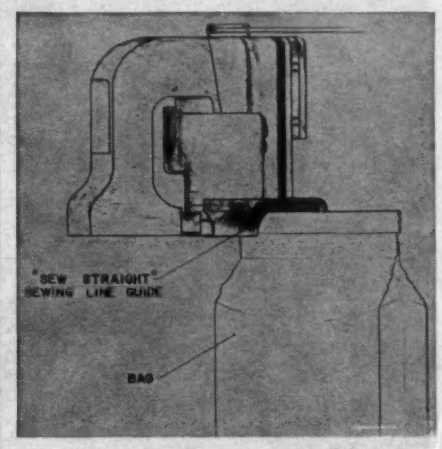
A new trailer sprayer combination for a wide range of farm spraying needs has been introduced by the F. E. Myers & Bro. Co. The spraying combination includes a heavy-duty trailer (3TR), a boom (ET21) and a "Myers Du-All" pump (5706). The all-steel trailer comes equipped with six barrel hook rods and may be used with one, two or three 55-gal. drums. When fitted with 6:70-15 tires, the trailer has a ground clearance of ap-



proximately 30 in. Tread width can be varied from 60 to 80 in. To secure details check No. 6743 on the coupon and mail it to Croplife. Please print or type name and address.

No. 7019—Sewing Line Guide

Users of open-mouth multiwall bags have available a new sewing line guide developed by the Union Bag-



Camp Paper Corp. Called "Sew-Straight," the guide is said to insure a constant, uniformly-sewn top closure and improves the appearance of the package. Closure within one inch of the bag top is permitted. Check No. 7019 on the coupon and mail it to secure details. Please print or type name and address.

No. 7010—Grain Insect Calendar

The Douglas Chemical Co. has prepared a full color two-year calendar with illustrations of 12 principal stored grain insects. The insects are

shown in their adult and larval stages and in actual size. Habits of the insects are also described. Check No. 7010 on the coupon to secure details.

NURSERY OPEN HOUSE

COLORADO SPRINGS, COLO.—Six member nurseries participated in the Colorado Springs Nurserymen's Assn. first open house recently. Participating nurseries were: Cannell Nursery, Colorado Gardens, Keithley's Nursery, Kenny's Nursery, Rick's Nursery and Upton Gardens.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

Two new pesticide plants were completed in May. One, operated by Arizona Fertilizers, Inc., Phoenix, is located at Willcox, Ariz.; the other, by General Chemical Division, Allied Chemical Corp., is in Minneapolis.

Fertilizer prices are up about 1% at the retail level this year, according to the U.S. Department of Agriculture. The 1% represented that much of a gain over the retail prices of last year.

Mid-South fertilizer sales were running below those of the previous year mostly because of foul weather which plagued agriculture earlier in the season. Some manufacturers and distributors reported that sales were as much as 30% behind last year, but deliveries were picking up well.

A report by the U.S. Department of Agriculture indicated that grains stored on farms in a number of midwestern states totaled 2.5 billion bu., and that further expansion of farm storage facilities will be needed. This situation was seen by Croplife's Washington correspondent, John Cipperly, as presenting an opportunity to the pesticide industry for sales of protective products for the stored materials.

Dr. William P. Boyer was named head of the chemical division of Virginia-Carolina Chemical Corp., Richmond.

North Carolina's state board of agriculture, made three changes in its official fertilizer grades. The grade 0-13-36 replaced 0-20-40, and 13-13-13 was deleted. A new grade, 4-8-12 was added for use on tobacco.

That an ample supply of pesticidal materials will be available for the current growing season was indicated by H. H. Shepard. USDA, in the annual "Pesticide Situation" report published in Croplife. Requirements for the year were estimated as follows for some of the widely-used pesticidal materials: DDT, 65 million lb.; Aldrin, chlordane, dieldrin, endrin, heptachlor, and toxaphene, combined, 45 million lb.; BHC, 8 million lb.; calcium arsenate, 15 million; copper sulfate, 30 million; 2,4-D (acid equivalent), 25 million; lead arsenate, 10 million; pyrethrum, 7 million; rotenone, 6 million; and 2,4,5-T, 2.5 million lb.

An infestation of desert locust, or band-winged grasshoppers, in Arizona was brought under control after a ten-day cooperative federal-state spraying effort over some 140 000 acres of desert land adjacent to irrigated crop lands. Several thousand acres of cotton and vegetable crops were damaged by the insects, but the control measures are credited with saving the major portion of crops.

Hugo Riemer, president of the Nitrogen Division, Allied Chemical Corp., New York, left his post after a career of 23 years with Allied. Mr. Riemer was a director and member of the executive committee of the National Plant Food Institute and prominent in the plant food industry.

Agricultural deliveries of potash were down 6% during the first three months of 1958, the American Potash Institute reported. Deliveries by the eight principal American producers totaled 929,326 tons of salts containing an equivalent of 544,204 tons K_2O.

The cotton industry, after a long period of disagreement, conceded that it must accept lower prices and expanded acreage if the industry as a whole is to avoid hard financial times. In May, the industry appeared to be ready to back legislation which would provide a basic cotton acreage allotment of 14 million acres from which a 30% excess of plantings would be permitted without penalty.

Pesticide exports during 1957 totaled more than 317.7 million pounds, worth more than $86 million, the U.S. Department of Commerce reported. These figures represented an increase of 8% in volume and 5% in value over the previous year.

American Cyanamid Co. announced that it would construct a new multimillion dollar maleic anhydride manufacturing plant at Bridgeville. Pa. The product of the plant is used in making agricultural chemicals and other products.

Scientists at the U.S. Department of Agriculture announced that chemically-chelated metals can be applied to soils to make them available to growing plants.

Shareholders of American Potash & Chemical Co. and of Lindsay Chemical Co. approved a merger of the two companies. Lindsay Chemical Co. will be operated as the Lindsay Chemical Division of American Potash.

A U.S. District judge in Utah found that Charles M. Miller, engineer formerly employed by Monsanto Chemical Co., St. Louis, had unlawfully revealed trade secrets to his subsequent employer, Central Farmers Fertilizer Co., a wholesale cooperative. Official injunctions are to be made on June 21 at Salt Lake City.

The U.S. Department of Agriculture said the water supply outlook for some western areas was the best in six to ten years . . . USDA also released results of tests indicating that herbicides in the granular form could extend the scope of chemical weed control . . . Naugatuck Chemical Division, U.S. Rubber Co., said that it would request the Food & Drug Administration to refer the new FDA proposal to establish a zero residue tolerance for the pesticide Aramite on food crops to an advisory committee of nationally-known scientists for decision.

Contracts were let to two chemical companies—Wasatch Chemical Co. and Sinclair Refining Co.—to supply pesticides to battle a bark beetle epidemic which is destroying trees on the Utah-Wyoming border.

Two campaigns against the Great Basin tent caterpillar are to be launched in Colorado, New Mexico and Arizona by government insect experts. They plan to spray the caterpillars from planes with poison and a killer virus.

FARM SERVICE DATA

Extension Station Reports

Farm economists report that it is a false economy to cut down on essential crop production items as a means of beating the present cost-price squeeze. Actually, this may reduce income more than outgo, according to the California Fertilizer Assn. U.S. Department of Agriculture economists say that farmers may find it pays to use more instead of less of certain items used in producing crops and to increase their management efficiency.

Fertilizer is an example. Prices of plant food have gone up only 17% during the last 30 years, while all commodities which the farmer must purchase have risen about 100%.

The economists cite dairying as an instance of how costs can be cut by more efficient management practices and better use of some crop-producing items. Many farmers are not using enough fertilizer to get maximum yields of pasture according to these economists. Yet dairying costs can be greatly reduced by growing better and cheaper roughage instead of purchasing expensive concentrates.

Some farmers do not prepare adequate seedbeds for pasture. Others are not using the most efficient equipment. And still other dairymen wastefully increase their costs by feeding protein supplements when their cows are on high protein pasture.

The economists say that lower costs and higher profits depend on using the best combination of production items and management methods.

The association suggests the local fertilizer supplier as a good source of information concerning the soil and crop needs of the area which he serves.

★

Tree diseases cause a heavy loss to Oregon's timber resources each year, according to Charles R. Ross, extension farm forestry specialist at Oregon State College.

A recent study by the U.S. Department of Agriculture Forest Service shows tree diseases are one of the major destructive agents reducing forest productivity. More than one-third of the yearly loss from reduced growth and death of sawtimber and younger trees is caused by tree diseases, the study stated. Insects and fire are other major causes of heavy loss.

In Oregon, heart rot in mature trees is causing loss of more than 500 million board-feet each year, Mr. Ross found. Douglas fir root rot is another major disease in the state's forests, he said, causing an estimated loss of over 200 million board-feet annually. Dwarfmistletoe and needle blight are two other diseases causing serious losses each year. This represents a loss of about one-tenth of Oregon's annual production of timber, Mr. Ross noted. The state harvests around 9 billion board-feet annually.

★

"Cattle range operators find that fertilizers and brush removal have a greater role than previously assumed" is an excerpt from the 1957 Annual Report of the Orange County Agricultural Extension Service of the University of California, according to the California Fertilizer Assn.

The report had this to say—"Beef is what you feed it—an expensive operation! Orange County livestock and range operators look to the hills as an inexpensive source of feed. They're doing it this way:

"Moulton and Whiting ranches find good grass cover will establish itself after competing brush is removed with chemicals. Results with mechanical removal have been encouraging on the Nohl and Whiting ranches. Costs with different methods vary from $6 to $10 an acre.

"Fertilizing range lands with 10 to 20 pounds of nitrogen and 20 to 60 pounds phosphate per acre is giving optimum results for longer forage. Materials being used include 16-20-0 and 11-48-0."

The association quotes as follows from another part of the Orange County report—"Nitrogen and phosphates will increase forage yield. They have worked best when combined.

"The optimum application doubles the yield and extends the grazing season with earlier growth.

"Feed increase is secured at an average cost of one-half cent per pound of forage. Pretty cheap hay, isn't it?

"Response has been good even with low rainfall. Animals pick out fertilized areas for heavier grazing—better acceptance."

★

Indications of potash deficiency in the potato growing areas of Kern County, California, have recently come to light.

Studies now going forward under the direction of Dr. Oscar Lorenz, professor of vegetable crops, University of California, in cooperation with Forrest Fullmer, agronomist, American Potash Institute, have been brought about because of several potato areas exhibiting a deficiency scorch or burn similar to that found in the Santa Maria area two years ago.

In an attempt to determine the cause of this trouble many petiole samples from the afflicted areas were analyzed for nitrate, phosphate, potassium, manganese, calcium and magnesium. All of these plant nutrients except potassium were found to be above the critical levels established by Dr. Lorenz. In the case of potassium, where the critical level is between 3 and 4%, samples taken from the afflicted plants contained levels down as low as 1.5%.

Dr. Kent Tyler, an associate of Dr. Lorenz from the Riverside Experiment Station, has conducted soil analysis studies, and has found that samples from the above mentioned afflicted areas run down to 25 ppm of potash while samples from normal areas contain 60 ppm of potash or more. From the results they have obtained to date, they estimate that soils below 60 ppm are potash deficient.

These findings plus the fact that the potassium deficient samples came primarily from older fields with light textured soils are a strong indication that potash deficiencies are now developing in the San Joaquin Valley and should receive full consideration in any management practice.

It has been found that 350 sacks per acre of potatoes extract 262 lb. of nitrogen, 70 lb. of phosphorus pentoxide, and 385 lb. of potash from the soil.

★

Results of spurry control experiments in oats show that gross returns, after deducting the costs of herbicides and fertilizers, were increased from $21 and $44 an acre, reports Lambert C. Erickson, weed research agronomist with the University of Idaho agricultural experiment station. The field trials were conducted at Donnelly on the farm of W. E. Batie.

Although spurry is not yet a major weed in Idaho the acreage is steadily increasing. Current estimates place it at around 50,000 acres. The two major areas of infestation are in the acid soils of Bonner and Valley counties.

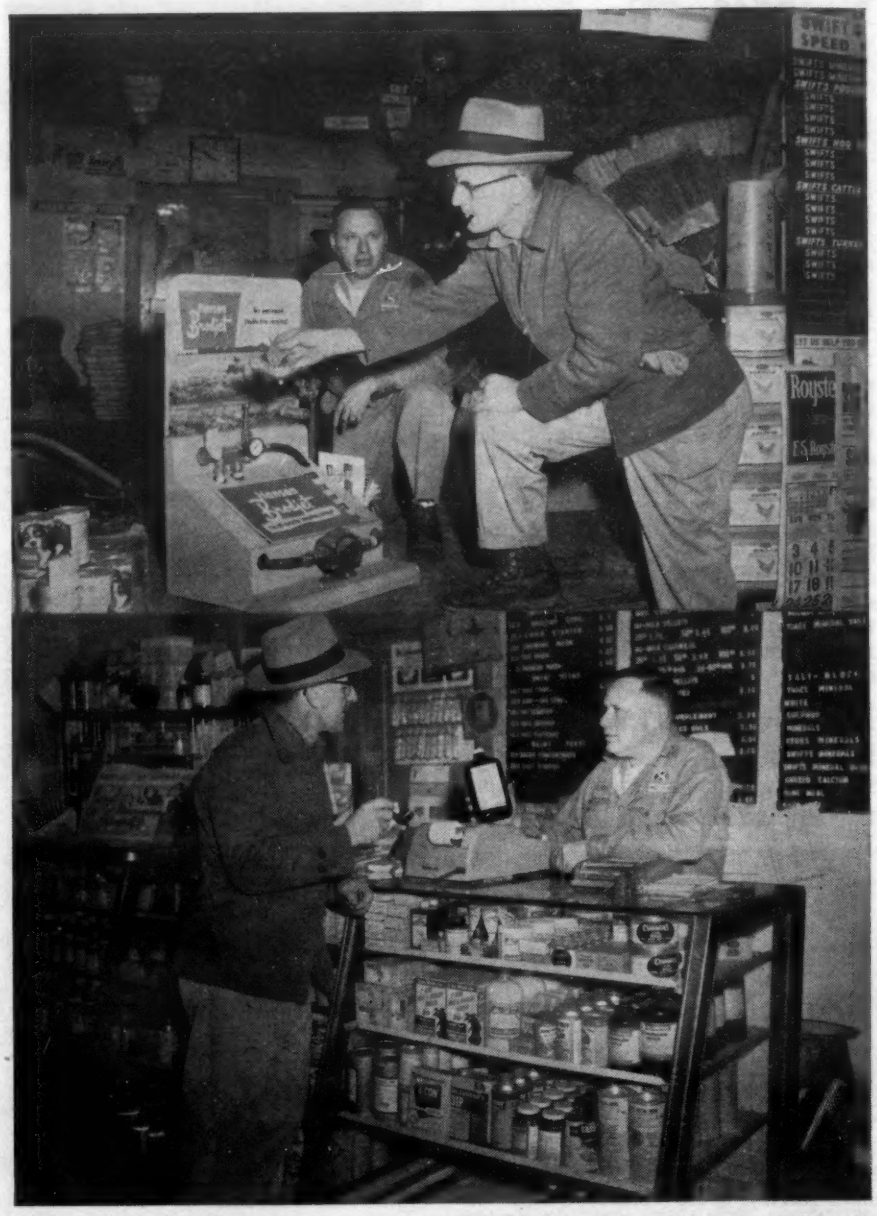
"Each year several new small outbreaks are reported from districts quite remote from the larger infestations," Mr. Erickson reports. "This could be a caution sign of the potential future problems."

Harvest data show the most satisfactory treatment to be 2 lb. of MCPA and 35 lb. of nitrogen per acre. This yielded 91 bu. of oats and resulted in approximately 98% spurry control.

"Of particular importance to the farmer is the fact that this treatment also gave the greatest per acre profit," Mr. Erickson notes. "It more than doubled the income received from the non-treated check plot."

★

Winter wheat growers need not be plagued by annual weeds in the wheat or along the edges of fallow strips, says B. J. Kolp, Wyoming University agronomist. Controlling weeds with proper applications of 2,4-D will reduce loss resulting from lower yields and grain with weed seed and foreign material present, he said.



SELL IN SEASON—When customers are interested in sprayers, that's the time to get them on prominent display. So says Walter Smith (top, background), manager of Northern Elevator Co., Manitowoc, Wis. By getting his stock of sprayers out from the walls—close to main traveled aisles—he gets more attention from store traffic—and extra sales, too. And Mr. Smith is always close at hand ready to explain the sprayers and their uses if the customer is interested. Mr. Smith is a firm believer in informing the customer fully about a product. In the picture below he holds a product up for view and tells the prospect what it will do, who has used it in the area and what the results have been. "This often convinces the prospect that this is the product he is looking for," says Mr. Smith. "We make a practice of checking back on customers and finding out how this or that product worked for them. We get some of our best product recommendations that way."

New Rust Poses Threat To Texas Grain Fields

VERNON, TEXAS—A new type of rust is posing a serious threat to small grain fields throughout several counties in this area. The blight has been called striped rust, and appears to be entirely new to this section.

Specialists from Texas A&M College have requested county agricultural agents to send samples to the laboratory for analysis. One agronomist, Roy Quimby of the Chillicothe Experiment Station, says the rust is attacking some varieties that had become immune to the common types of rust.

He said the potential loss cannot be determined yet, because a week or two of dry weather might lessen the danger. From all reports, the rust damage seems to be serious in Wilbarger, Foard and other surrounding counties. Some observers say there is 100% infestation in certain areas and that in Foard County the loss is already a half million dollars.

Aircraft Group Seeks Licensing Legislation

FRESNO, CAL.—The Agricultural Aircraft Assn. is sponsoring legislation in California requiring chemical salesmen, entomologists and others who make insect control recommendations to pass a written examination and obtain a license. Members of the association voted unanimously at their 1958 convention to sponsor such legislation.

OVER THE COUNTER

(Continued from page 9)

even more business in the years ahead.

The firm does not sell insecticides but merely spreads them for the farmer.

"We do recommend what is needed and tell him where it can be bought. The only responsibility we assume is to do a good job. If some mechanical failure prevents a good kill, then we do the job again without charge," Mr. Hibbert said.

With any aerial applicator company, safety is a major problem. With Mr. Sargent it stands at the top of the list. He uses utmost caution in handling his men and planes. Pilots wear rubber gloves and respirators when handling the materials or in the air. They are given periodic medical examinations. When workers handle any kind of insecticide, a large can of water is nearby, so the men can wash quickly if they accidently come in contact with the product.

One of the dangers in flying in this area is the oven-like temperatures that grip the valley for several months every year. During June, July and August the thermometers sometimes reach 115° or higher, which makes flying a hot and dangerous task.

During the summer months the pilots start work at daylight, and continue until 11 a.m. Then they remain inside until the sun is halfway down in the west before resuming work.

Because there are so many crops and different kinds of insects, the company relies upon the services of two entomologists working in the valley. These men spend much time out in the fields making insect checks, and they usually know when an infestation is due. This information is passed on to Mr. Sargent, who can then start taking orders and plan his schedule for work.

The work goes on 12 months a year. During the summer cotton insects are a problem, while lettuce insects are usually present during the spring and fall months. Down in the Imperial Valley where crops flourish all winter, the insect control program never stops.

The Sargent Pest Control Service relies mostly upon veteran customers for its business. Some of them have requested his services for 12 years, and are still with him. Many others have come into the fold through advertising and personal visits from the flyers or owner.

The one rule for success in this business, Mr. Hibbert says, is to give helpful service. Unless the farmer can make a profit from those crops, then no one supplying him with merchandise can expect much.

"Another thing we must do," he continues, "is to keep the cost down. These farmers are like farmers everywhere; they have seen farming expenses rise while the sale price of crops remains the same.

"So we can't expect to make a big profit from each farmer. Our aim is to do the job as economically and effectively as possible. The firm is adding to its income by increasing its volume of business."

A few years ago Mr. Sargent started spreading seed and fertilizer by the use of airplanes, and now this is becoming quite a profitable business. "It's getting to be a big sideline," he says.

As with the insecticides, the firm does not buy seed and fertilizer, but spreads it for the farmer.

SPECIALISTS—The Sargent Pest Control Service, Blythe, Cal., has established a reputation as a specialist in aerial application of insecticides in the Imperial and Paloverde valleys of southern California. Dave Hibbert (left), assistant manager, and Millard Stroop, a pilot, are shown readying a plane for an application job for a farmer.

Program Announced For Pacific Northwest Fertilizer Conference

PORTLAND, ORE.—Details of the program for the ninth annual Pacific Northwest Fertilizer Conference have been released by the Pacific Northwest Plant Food Assn. The conference will be held July 8-10 at Hotel Bannock, Pocatello, Idaho. Speakers and topics for the various sessions will include the following.

July 8 forenoon—Welcome by Jack Wursten, Simplot Soilbuilders, Idaho Falls, Idaho; "Effect of Date of Seeding Winter Wheat on the Nitrogen Efficiency," Harley Jacquot, McGregor Land and Livestock Co., Pullman, Wash.; "Residual Nitrogen Studies in Wheat Production," Roger Harder, University of Idaho, Moscow; "The Effect of Nitrogen Fertilization on Yield and Quality of Hard Red Winter Wheats Grown on Dryland in Southern Idaho," Paul J. Fitzgerald, U.S. Department of Agriculture, Aberdeen, Idaho, F. H. Siddoway, USDA, Manhattan, Kansas, and J. V. Mannering, University of Idaho, Aberdeen; "The Effect of Fertilizers on Wheat Quality," M. G. Klages and C. A. Watson, Montana State College, Bozeman; "Nitrogen Fertilization and Other Factors Affecting Lodging of Field Corn," C. E. Nelson, Irrigation Experiment Station, Prosser, Wash.; "The Use of Our Present Research Knowledge in Predicting the Potential Fertilizer Use on Irrigated Pasture and Hay Areas Used for Beef Production in the 17 Western States," Forrest M. Willhite, Colorado State University, Grand Junction; "Agriculture in Ecuador," luncheon address by George Woodbury, University of Idaho.

July 8 afternoon—"TVA Program in the Pacific Northwest," Merle Sweitzer, Washington State College; "Economic Use of Nitrogen and Phosphorus in Relation to Sugar Production," Ted Gessel, Amalgamated Sugar Co., Nampa, Idaho; "Relation of Fertilization and Soil Fertility to Forage Production in Western Washington," Darrell O. Turner, Western Washington Experiment Station, Puyallup; "Fertilizer Trials in the Columbia Basin Project," A. I. Dow, Irrigation Experiment Station, Prosser, Wash.; "Progress Report on the Residual Influence of Phosphate Fertilizer Applied to a Calcareous Soil," J. V. Mannering and G. O. Baker, University of Idaho; "Residual Phosphorus Studies in Oregon," A. S. Hunter, E. N. Hoffman and John A. Yungen, Oregon State College, Corvallis; "Factors Affecting Potassium Availability in Arid Soils," R. B. Farnsworth and M. J. Hallam, BYU, Provo, Utah.

July 9 forenoon—"Survey of Factors Influencing Farmer Use of Fertilizer," Delbert L. Rucker, National Plant Food Institute, Washington, D.C.; "National Plant Food Institute Program for the Pacific Northwest," F. Todd Tremblay, NPFI Northwest representative; "Fertilizer-Insecticide Mixtures for Idaho," Roland W. Portman, University of Idaho; "Chelates and Their Application to Minor Element Problems," speaker to be named; "Factors Affecting Quality of Potatoes," Richard E. Ohms, University of Idaho.

July 9 afternoon—Field trip to the Aberdeen Branch Experiment Station and to the Neibaur Farm with Sterling Schow and Albert Mylroie, county agents for Power and Bannock counties, in charge.

July 10 forenoon—"Soil and Plant Studies on Sick Alfalfa in Northern Idaho," J. V. Jordan, University of Idaho; "Nutrient Status Survey of Alfalfa in Southwestern Montana," H. A. Kittams, Montana State College; "An Evaluation of Methods for Determining the Nitrogen Supplying Power of the Irrigated Soils of Northern Utah," J. R. Wright and J. P. Thorne, Utah State University, Logan; "Chlorosis Studies," R. L. Smith and Wynne Thorne, Utah State University.

Doing Business With

Oscar & Pat

By AL P. NELSON
Croplife Special Writer

The telephone rang shrilly in the home of Oscar Schoenfeld, but there was no answer. The hour was 11:15 p.m. and Oscar and Minnie had long since retired. In fact, frugal Oscar was already snoring and dreaming that all delinquent customers were lined up in front of his desk paying their bills at 6% interest.

Once more the telephone rang. This time, Minnie awoke. She poked Oscar in the ribs. "Oscar!" she said. "The telephone is ringing!"

Oscar grunted. "Let it ring. It's maybe that mother-in-law of mine again. Ach, I'll bet she wants to visit for two weeks. Wasn't she here two years ago? Why does she want to come back so soon?"

The phone continued ringing, and Minnie got out of bed, tramped into the hall in her bare feet.

"It's for you, Oscar!" she called. "Somebody says he's got to talk to you."

Grumbling, Oscar swung his legs over the edge of the bed, scratched his pot a little, yawned, then got up slowly. In his knee-long nightgown, he walked slowly down the hall.

"Ach, these crazy fools that stay up haf the night!" he growled. "Why don't they go to bed earlier, like I do?"

He took up the receiver. "Hello, what you want?" he said loudly.

"Oscar," said an excited voice, "am I the first farmer to call you tonight "

"Ach, you bet you are the first. What's the idea of getting me out of bed so late? Who iss this?"

"It's Pete Teasdale, Oscar. I jest heard over the radio that you fellers are offering to put anhydrous on the first acre free of charge if a feller gets his order in right away . . . No, not everybody. Just the first feller that takes advantage of the offer."

"What!" thundered Oscar, now fully awake. "I do not know notting about it. I don't believe in giving anything away free."

"Well, I heard the ad over the air just a few minutes ago, my friend. It said you fellows would give a prize to the first customer gettin' in his order to sidedress corn with anhy—one acre free of charge. I phoned Pat right away, and he wasn't in. His wife said he was to an Irish birthday celebration, and you know what that means, so I called you. Remember that time now—11:15. That's when I called. I'll be in tomorrow and verify this. You guys can't renege."

"That Irisher!" cried Oscar, his chest heaving. "Another one of his crazy ideas."

"It's not so crazy," said Teasdale. "Ever see a farmer that didn't want somethin' for nothin'? I'll bet you'll get lots of other phone calls tonight, soon as a lot of slow brains get wise to what I did. Pat ain't home so I phoned you, and I'm in—get it?"

Oscar's brain was clearing. "You owe us some money, Teasdale," he said. "$47.02. It's a balance on fall fertilizer. Ach, we shouldt gif something free when you owe us money."

"Aw, that ain't a big balance. I'm gonna pay it the tenth of the month when I get my milk check. Had a lot of sickness and other hard luck, but I can see the sun now. And I'm gonna put in lots of anhy on my corn."

"Cash?" asked Oscar.

"Let's talk about that tomorrow, Shylock. Holy cow, are you ever the one for the money? Is that all you think of?"

"Well, you owe us, don't you?" Oscar countered. "If you can't support yourself, how can we?"

Teasdale roared. "Hey, listen, I'm gettin' mad now. I'm a good customer even if I'm a little slow payin' bills. But they get paid eventually. Remember, I got that free anhy, old boy. If you don't give it to me, I'll break into your cellar and stash in your barrel of sauerkraut juice some night."

And the farmer hung up. "Free anhydrous . . . ach, at midnight almost . . ." Oscar was very angry.

His footsteps padded heavily on the linoleum floor as he went back to his bedroom.

"That Irisher—always he wants to gif something away. Always he's got promotions, promotions. He's not satisfied to promote in the day. Now it's nights, too. And the phone ringing . . . waking me up. Minnie . . . what is the worldt coming to? Why can't it be like it used to be?"

Minnie covered up with the blanket. "Oscar, maybe it's us that should change a little. The minister said last Sunday—remember—that the world goes ahead. There are new ways of doing things. New ways of thinking. We should not stand still. And, so long as we read the Bible, go to church every Sunday, and don't cheat our neighbors, we will still be good Christians."

"Huh," grunted Oscar. "Even the ministers are changing. They want bigger churches, when they could have two services a day and still get along with the old, small church. They don't think how much it costs to build a new church. Things are gettin' bad, Minnie, when the ministers go talking foolish schtuff like the rest of the people. I don't want to change. I want to stay just like I am. I like it that way."

The phone rang again. "Shall I answer it?" Minnie asked a little fearfully.

"No," Oscar said. "Let it ring. Let that Irisher get called when he comes home. When I start having to do business at night instead of in the daytime, ach, then I will retire, or sell out! Das ist genug."

Fertilizer Round Table Scheduled for October

WASHINGTON — Plans for the 1958 fertilizer industry round table are getting under way, with the theme "Economics of Fertilizer Production" forming the background of discussions.

According to Dr. Vincent Sauchelli, chairman, the meeting will comprise question-and-answer sessions, with full discussion of topics selected for coverage.

Among subjects expected to be discussed at the meeting will be: Preventive maintenance versus replacement of equipment, instrumentation, economics of processing, formulations, effluents, drying, cooling, total power costs and horsepower required to produce granular fertilizer, and corrosion.

The meeting is scheduled to be held at the Sheraton Park Hotel, Washington, D.C., Oct. 29-31, 1958, Dr. Sauchelli says.

WESTERN FARMERS' ATTITUDE

(Continued from page 9)

jority of farmers at all levels of use thought they needed either nitrogen alone or both nitrogen and phosphate.

About 30% of all farmers apparently change their fertilizer practices from year to year indicating uncertainty and perhaps dissatisfaction.

By reason of the farmer's limited knowledge and lack of understanding about fertilizer, many communications about analysis and amount are incomplete and are not fully effective in influencing farmers' thoughts and behavior. Many messages are sent, but only a few are received.

He seeks information and advice from others to overcome his uncertainty and lack of knowledge.

He rates county agents and agricultural college publications very high as sources of practical fertilizer information.

Source of information	Rating*
County agent	77
Agricultural college publications	40
Neighbors	26
Local farm magazines	24
Local dealers	18
National farm magazines	7
Manufacturers' salesmen	5
Radio and television	5
Newspapers	4

*Per cent of highest possible rating.

BUT—he more often discusses his fertilizer needs with others before buying.

Persons talked with	Frequency %
Local dealers	35
Family member	16
Neighbor	15
County agent	13
S.C.S. representative	4
Manufacturer's salesman	4
College specialist	3
Banker	2
High school vo-ag teacher	1
Other	6

Seventy percent of western farmers discussed their fertilizer needs with someone before buying; 30% apparently talked to no one.

He does a lot of reading about fertilizer.

About two thirds of fertilizer users reported reading something about fertilizer.

He hears about fertilizer on radio and television. (About 10% of users recalled hearing something about fertilizer on radio and TV.)

Farmers apparently have confidence in their State agricultural colleges as sources of practical information. Therefore, cooperation of State agricultural colleges should be sought by industry in its promotional program. Fertilizer information must be considered authentic if it is to be accepted.

Personal discussions were considered helpful and frequently led to further action.

Eighty one percent of those reporting one or more discussions before buying fertilizer said that the discussions were helpful.

Seventy seven percent said that such discussions led to further action.

While a higher percentage of farmers seem to read about fertilizer than discuss it with others, discussions seem to lead to a much higher degree of action.

What subjects are discussed when a farmer talks over his fertilizer needs?

Analysis and amount apparently are of more interest than price and brand in such discussions.

Subject discussed	Rating* %
Analysis	53
Amount	47
Price	34
Expected results; advantages	12
Brand	7
When and how to apply	4
Other	12

*Per cent of total mentioning each subject. (Some mentioned two or more subjects.)

Established agricultural publications are principal reading sources.

Farm magazines—especially farm magazines concerned with local or regional interests were mentioned most frequently by those who said they had read about fertilizer.

Reading source	Rating %
Farm magazines	68
Government and extension publications	13
Literature from fertilizer manufacturers	6
Newspapers	2
Other	10

Government and agricultural extension publications rate next in order as reading sources.

Literature published by fertilizer manufacturers rates very low.

Newspapers rate surprisingly low, but undoubtedly are valuable for calling attention to meetings, demonstrations, and availability of information from other sources.

Creating awareness seems to be an important function of the mass media (farm magazines, radio, television and local newspapers).

Expected results and the advantages of using fertilizer are the subjects mentioned most frequently by those who reported reading or hearing about fertilizer; especially by the low and non-users. More specific subjects, such as analysis, amount, method and time of application were mentioned much less frequently—particularly by listeners to radio and TV.

Subjects mentioned	Frequency—Readers of publications %*	Frequency—Listeners to radio & TV %
Advantages of using; expected results	58	28
Analysis	19	19
Amount	16	5
Method of application.	8	10
How to diagnose soil and crop needs	4	5
Other	11	33
Don't remember	15	19

Fifty six percent of users reading about fertilizer, said information they read was helpful, but only 23% said it led to further action.

Thirty four percent of users hearing about fertilizers on radio and TV, said this information was helpful, but only 17% said it led to further action. Sixty two percent said it had no effect.

While reading and hearing about fertilizer seldom lead to as much action, these sources may have more influence on a farmer's initial thinking about fertilizer than do discussions.

Mass media may be the only means of communicating with many farmers who apparently do not come in contact with other sources.

While these data indicate that farmers who use fertilizer generally found reading and hearing helpful, most non-users did not think it was helpful. However, non-users did indicate sufficient exposure to information on fertilizer that their practices should have been influenced if this material had been understood and believed, and seen as applying to their own operations. Local orientation of material which the farmer reads and hears probably would make it easier for him to identify his own personal situation with the information.

What are the principal factors which influence farmers' decisions about using fertilizer?

Principal factors which motivate western farmers, approximately in the order of their relative importance are—

Personal experience.

Experience of neighbors.

Soil tests and recommendations.

Recommendations by agricultural experts.

Recommendations by dealers.

Farm demonstrations and experimentation.

In deciding how much fertilizer to use, 46% of those western farmers who are high-level users say they rely upon their own experience and judgment as compared with only 17% of low users. On the other hand, 33% of low-level users say they rely upon the advice of agricultural experts as compared with only 12% of high users.

Soil tests rate very high as a basis for decision.

Sixty one percent of fertilizer users, and 40% of all farmers reported having their soils tested.

Percentage of Farmers Who Have Had Soil Tests	
Fertilizer users	61
Non-users	30
All farmers	40

About 40% of those who didn't have a soil test said it was because of their own negligence.

Of fertilizer users who had their soil tested, only 10% definitely stated that they **did not** at least partially follow test recommendations. (Even though soil tests may not have been recognized in the West as a potent factor influencing fertilizer usage, results of this study indicate that soil tests and similar aids such as plant analysis, may be very important tools in getting fertilizer used.)

There is considerable evidence that farm demonstrations exercise a strong influence.

The average farmer is more likely to believe results and adopt practices he can see and interpret in terms of his own farming operations.

He relies heavily on his own experience and judgment and upon the advice of neighbors.

He thinks farmers would be favorably influenced by seeing fertilizer demonstration plots. (Nearly three fourths of all farmers thought that seeing demonstrations would have a good or positive effect).

About one third said they had read about fertilizer demonstrations; half of these said the information was helpful, and over one fifth said it led to further action.

YET . . .

Only 26% could recall having visited a fertilizer demonstration plot. Of these, 40% were high-users as compared to 20% of non-users.

Thirty four percent of all farmers said they had done some experimenting with fertilizer on their own farms. Of these, 72% were high level users, 27% non-users.

Farmers need help in judging results from using fertilizer so that they can view it as a known factor in production. Otherwise, they tend to attribute the benefits from fertilizer to other practices. Demonstrations and experimentation permit farmers to see the results of fertilizer practices under circumstances that are easily related to their own farming operations.

Why don't farmers use fertilizer?

Non-users most often felt fertilizer simply was not necessary, but also rated lack of money fairly high. Even so, lack of money does not appear to be as important in the West as it is in other regions where it was a dominant factor.

Reasons for not using commercial fertilizer	%*
Not necessary	38
Not enough money	27
Unfavorable weather conditions	16
Prefer organic fertilizer	11
Other	24

*Per cent of total mentioning each reason. (Some farmers gave more than one reason.)

Farmers apparently believe that unfavorable weather is likely to have a much greater effect on results from fertilizer use than research would indicate. (Recent data indicates that fertilizer frequently can be used to help overcome unfavorable moisture conditions and to increase the efficiency of water utilization).

Only about half of non-users gave reasons which display a personal bias against commercial fertilizer. Most of these either thought fertilizer was not necessary, or preferred organic fertilizers.

About 10% of all western farmers do not believe in using any commercial fertilizer.

More farmers say they are willing to borrow money to buy fertilizer than actually do so.

About 40% of fertilizer purchases were paid for at the time of delivery. The other 60% were bought largely on short-term credit . . . **YET . . .**

About one third of non-users say they would or probably would borrow money to buy fertilizer even though 27% gave lack of money as a reason for not using fertilizer.

	All farmers %	High-users %	Non-users %
Certainly or probably would borrow	54	100	32
Certainly or probably would not borrow	46	..	68

Even though more farmers apparently are willing to borrow money to buy fertilizer than do so, they seldom consult bankers on their fertilizer problems. Most farmers apparently are not inclined to seek bank credit on their own initiative.

To buy more fertilizer, farmers undoubtedly need an adequate source of credit. A greater effort is needed to encourage more banks and other lending institutions to make provision for fertilizer in their production loan programs. . . . **BUT . . .**

Availability of credit alone will not stimulate farmers to use proper amounts of fertilizer. The frequency with which "not necessary" is listed as a reason for not buying fertilizer reflects a low level of conviction as to the benefits which may be derived. **THEREFORE,**

Efforts to improve the availability and use of credit are likely to be much more effective if a simultaneous effort is made to upgrade farmers' thinking as to optimum rates of fertilizer usage.

A considerable market potential for fertilizer is indicated by the results of this study.

Only 7% of all western farmers use fertilizer on either of their two most important crops at rates approaching those recommended by their state experiment station; of these 92% are in California and Arizona.

Fifty five percent of all farmers used no commercial fertilizer on either of their first or second most important crops.

The other 38% used fertilizer at rates much less than considered adequate in all cases for the type of crop and soil involved.

Of all those using fertilizer on their two most important crops, 41% used less than 150 lb. per acre.

Fifty four percent of all farmers think it would be a "good idea" to fertilize pasture and forage crops and gave positive reasons for their belief. Despite this favorable attitude, only 9% of the total acreage of these crops in the West actually is fertilized.

About 30% of all farmers apparently change their fertilizer practices from year to year. This flexibility presents a tremendous opportunity for the educational and promotional efforts of the institute, the industry, and established educational agencies to exert a favorable influence.

Of the 30% of western farmers who said they were making a change in their fertilizer practice in 1958, five times as many planned to use more fertilizer than intended to use less.

Robert E. Monroe Joins Aviation Group

WASHINGTON — Robert E. Monroe of Prescott, Ariz. has joined the Washington staff of the National Aviation Trades Assn. as assistant to the executive director, Charles A. Parker, it has been announced by William Lotzer, NATA president.

Mr. Monroe will aid in NATA's attack on the problems of the fixed base operator and aerial applicator industry. Special attention will be given by Mr. Monroe to matters pertaining to agricultural aviation, maintenance and the NATA annual convention. Mr. Monroe formerly served as vice president and chairman of agricultural activities of NATA and as president of the Montana Aviation Trades Assn.

KENTUCKY SALES

LEXINGTON, KY. — March fertilizer sales in Kentucky totaled 47,648 tons, compared with 76,853 tons in March, 1957. Sales of mixed goods last March amounted to 37,371 tons, down from 58,175 tons in March a year earlier, while sales of materials totaled 10,277 tons, down from 18,678 tons in March, 1957.

WEED OF THE WEEK

Poison Sumac

(Rhus Vernix)

How to Identify

Poison sumac grows as a coarse woody shrub or small tree, quite unlike the vine-like form of its poison-ivy relatives. The plant usually appears in the eastern half of the U.S. and is ordinarily associated with swamps and bogs, with the most typical growth occurring along the margin of areas of wet acid soil. The plants range in height from 5 or 6 ft. to small trees as tall as 25 ft. As a rule, the shrubs do not have a symmetrical upright tree-like appearance, but are more inclined to lean and have branched stems with about the same diameter from the ground level to the middle height of the plant. Leaves of poison sumac are divided into 7 to 13 leaflets, arranged in pairs with a single leaflet at the end of the midrib. The leaflets themselves are an elongated oval shape without teeth or serrations on the margins. Thy are 3-4 inches long and 1-2 inches wide, with a smooth velvetlike texture and bright orange color when they first appear in the spring. They later become dark green and glossy on the upper surface and pale green on the lower, and have scarlet midribs. Early in the fall, they turn to a brilliant red-orange or russet shade.

Harm Done by Poison Sumac

In this category, these unwanted plants cause agricultural losses only indirectly, through harming human beings who come in contact with the plant. Though some people are more tolerant than others to the effects of the plant's toxic agent (called urushiol) it is considered that such immunity is only relative and that practically everyone is susceptible to some degree to the irritating effects of this substance. The toxic agent, described as a nonvolatile phenolic material, is found in all parts of the plant, including the roots and fruit. Danger of poisoning is greatest in spring and summer when the sap is abundant, and least in the late fall or winter months. Cattle, horses, sheep, hogs and other livestock apparently do not suffer from skin irritation caused by these plants. Dogs and cats, though apparently not susceptible themselves, can carry the toxin to human beings on their fur.

Chemical Control of Plant

Poison sumac can be controlled by chemical herbicides without danger of the plant's poisoning the operator. Except in cases of unusually heavy growth, the operator may stand at a distance from the plants and apply herbicide. Chemicals recommended by various agencies include ammonium sulfamate, 2,4-D, ammonium thiocyanate, borax, 2,4,5-T (either alone or in combination with 2,4-D), creosote oil, fuel oil, sodium chlorate and sodium arsenite. Warnings are always in order concerning the fire hazards associated with sodium chlorate, particularly when the chemical is mixed with wood, cloth, or other organic materials which make it extremely combustible and easily ignited.

Illustration of Poison Sumac furnished Croplife through courtesy of U.S. Department of Agriculture, Beltsville, Md.

NPFI to Underwrite Minnesota Pasture Fertilizer Demonstrations

WASHINGTON — A $2,000 grant has been provided by the National Plant Food Institute to the Minnesota Agriculture Extension Department to sponsor pasture fertilization demonstrations this year in Southeast and Northern Minnesota. Cooperating in the 1958 program are agricultural extension agents and farmers in 11 Minnesota counties.

The pasture fertilization projects have a fourfold purpose: (1) To measure the effect of fertilization on the number of grazing days and milk production per acre by dairy cows, (2) to determine the economic position of permanent pasture in a cropping program under intensive management, (3) to demonstrate the effect of fertilization on the ability of the soil to produce vegetative cover to control erosion, and (4) to demonstrate the value of management in utilizing pasture under heavy fertilization.

Dr. Lowell Hanson of the University of Minnesota soils department and Dr. Ermond Hartmans, agricultural economics department extension specialist, are supervising the demonstrations.

In southeastern Minnesota, the Institute-supported program comprises seven demonstrations in five counties, including Goodhue, Wabasha, Winona, Fillmore and Houston, in which the farmer-cooperators are devoting two acres to the tests—one acre fertilized and the other unfertilized.

In Northern Minnesota, the program involves 12 demonstrations in six counties — Carlton, Mille Lacs, Pine, St. Louis, Itasca and Aitkin. The individual demonstrations cover four or ten acres each—half fertilized and half unfertilized.

In addition, the Grand Rapids Agricultural Experiment Station in Itasca County is conducting a research project under the pasture fertilization program. This includes two 10-acre fields, divided into 10 one-acre plots.

Phosphate and potash fertilizer, plus nitrogen at varying rates, are being used on all the pasture plots. The Institute's midwest office is working with the Minnesota research and extension men in gathering information on results of the various fertilization demonstrations.

Mid-South Farmers Squeeze Under Deadline For Planting Cotton

MEMPHIS—Ten days of hot, dry weather has helped Mid-South farmers squeeze under the cotton planting deadline. Agricultural extension service officials in Arkansas, Mississippi and Tennessee report that about 85% of the area's cotton lands has been planted. However, some 75,000 acres of cotton land are still under water in the Mississippi Delta and extension agents are urging that this land be planted to milo.

Reports from throughout the Delta say that much of the cotton is up to a stand and that it is being chopped in many areas. Farmers say that while the cotton crop is much later this year, it is generally in better shape than it was at this time in 1957.

L. H. Moseley, district agent for the Mississippi Delta, says that about 90% of the cotton has been planted and 75% is up to a good stand.

In the Arkansas Delta, extension officials estimated that up to 90% of the cotton has been planted. D. D. Dodd, county agent at Helena, reported that almost half of the cotton in his county had been replanted.

West Tennessee district agent H. T. Short says that a large percentage of the cotton in his area had been planted and that many counties needed a light rain to speed germination.

Having worked around the clock to get their cotton planted before the first of June, farmers now are turning their attention to other crops—corn, soybeans and grains.

The oat and wheat crops are nearing harvest stage although some areas are reporting insect damage. Fruit crops are in good condition and rice is reported looking good, but about a month late.

Two California Plant Quarantine Officials Retire

SACRAMENTO—Two veteran employees in the Bureau of Plant Quarantine, California Department of Agriculture, have announced their retirement plans.

Earl M. Swift, supervising plant quarantine inspector in charge of northern border stations, retired June 1 after 32 years of service and will make his home in Ashland, Ore. He began his career in state service as a seasonal inspector for the Bureau in June, 1956. Since that time he has held assignments on the Nevada border, at San Pedro, San Francisco and Truckee before being assigned to headquarters in Sacramento.

Bertram P. Johnson, intermediate plant quarantine inspector at the Redwood Highway station, will leave state service July 1 after 25 years as a state employee.

His first employment was as a seasonal citrus white fly inspector. His assignments included stations at Malin and Dorris before moving to his present post. He plans to make his home in Crescent City, Cal.

Wall Charts Show Crop Production Potentials

WASHINGTON—The National Plant Food Institute's Midwest Regional office soon will distribute crop production potential wall charts for Illinois and Wisconsin to member companies.

Check lists, which carry specific information relating to the various major soils areas in each state, presently are being printed in Chicago and will be distributed with the charts.

The Midwest office expects to circulate sample copies of the posters and check lists to member companies within a few weeks. The wall charts, either folder or flat, and the check lists will be available to members at the Institute's reproduction cost.

The charts and check lists were prepared in cooperation with soils and crops scientists of the University of Illinois and the University of Wisconsin.

MISSOURI FIELD DAY

COLUMBIA, MO. — The annual Missouri Soils and Crops Field Day will be held at the University of Missouri here June 3.

Farmers' Attitudes Toward the Use of Fertilizer in the Southwestern States

EDITOR'S NOTE: The accompanying article is an analysis of a study conducted for the National Plant Food Institute, Washington, of farmers' attitudes toward the use of fertilizer. The survey was conducted by National Analysts, Inc., Philadelphia, and was based on personal interviews with a representative sample of farmers. This article presents in summary form the principal findings of the survey in the southwestern states of Arkansas, Louisiana, Oklahoma and Texas. A summary of findings in western states is presented on page 9 of this issue. Previous summaries for other regions have appeared in the May 12, May 19 and May 26 issues of Croplife.

Each farmer in the survey was classified on the basis of his commercial fertilizer practices in 1956, and placed in one of these groups:

High user — farmer's usage was close to standards for most economical operations for his crop, soil, and normal moisture condition in consideration of the best recognized practices of agronomy.

Medium user—farmer's usage was substantial but well under the level above.

Low user—farmer's use was meager and inadequate for his crop and soil.

Non-user—farmer used no commercial fertilizer on his two most important crops in 1956. He may have used animal or green manure.

A slight majority (52%) of all farmers surveyed in the Southwest region were found to be **non-users**. Only a very small percentage were high users.

	Level of fertilizer use, per cent of all farmers surveyed			
	High	Medium	Low	None
In the Southwest	4	20	24	52
In the U.S.	11	25	27	37

The relatively high proportion of non-users in the Southwest, compared to the entire U.S., is indicative of the probable influence of climate, soils and cropping systems upon fertilizer usage, particularly in the extensive sub-humid farming areas of Texas and Oklahoma.

	Per cent of total cropland fertilized	Pounds fertilizer used per fertilized acre
Arkansas	35.6	235
Louisiana	47.1	232
New Mexico	10.5	247
Oklahoma	13.4	125
Texas	11.2	213
U. S.	26.0	307

The extremely low proportion of high users does not permit statistically valid comparisons between the high and lower use levels of the Southwest; however, medium and low level users may be compared with non-users within the region.

General Characteristics of Farms and Farmers Surveyed:

● **Age**—A slight majority (56%) were over 49 years old. Only 17% were under 40. Nearly two-thirds had operated farms for over 20 years.

● **Education**—Only 9% had some college, and 52% never attended high school. Most never took agriculture courses anywhere, nor did members of their families. In the Southwest, users were apparently no better educated than non-users.

● **Size of farms**—37% farmed between 100 and 180 acres, and 45% farmed over 260 acres. More non-users farmed the larger acreages than users.

● **Land tenure**—About half of all farmers owned all the land they farmed. A larger proportion of non-users than users rented all their land.

● **Crops grown**—The percentage of farmers who listed these crops as their most important in 1956 were as follows:

	All farmers	Medium users	Low users	Non-users
	%	%	%	%
Cotton	24	25	25	24
Pasture	27	24	25	27
Small grains	24	22	14	31
Corn	13	11	20	10
Hay	5	5	8	3
Veg. and others ...	7	13	7	5

● **Irrigation**—Only 5% of all farmers irrigated their most important crop in 1956. Slightly more users irrigated than non-users.

● **Financial Status**—33% of all farmers had capital investments below $15,000; 39% had investments of between $15,000 and $35,000; and 28% had investments of over $35,000. There was very little difference in size of investment as between fertilizer user levels.

BUT . . . gross income per acre was higher among medium fertilizer users than for low or non-users. (The number of high users is too small for the answers to be reliable.)

Fertilizer use level	Average gross income per acre of crops and pasture
High users	$37.50
Medium users	30.00
Low users	20.29
Non-users	20.46

There was no significant difference between the income per acre of low users and non-users.

General Attitudes About Farming

Nearly 70% of all farmers said they had not made as much as expected in the previous two years. Non-users were less satisfied than users in this respect. And non-users most frequently thanked the weather for good results, while users attributed their good results to better acre yields (better fertility) nearly as frequently as favorable weather conditions.

Half of all farmers thought the future would be generally worse, and only a fourth thought it might be better . . .

. . . BUT, users were more optimistic about the outlook for the future than non-users. Also, users tended to have more faith in advanced farming technology as a means toward a better future.

. . . Non-users and low users most frequently said that production costs would make the future worse. Their outlook might be brightened with proper information concerning adequate fertilizer use as a means of lowering production costs.

Less than half (42%) of all farmers had some plans for increasing returns during the coming five years, and a higher proportion of medium users than non-users had such plans. Plans for the future were rated in order of importance as follows:

	Fertilizer use level		
	Medium %	Low %	None %
Change proportion or breed of livestock ...	50	65	46
Use more commercial fertilizer	27	12	14
Change crops or proportion of crops	38	19	18
Use crop rotation methods	8	..	16
Use irrigation	12	..	7
Cultivate more land ...	8	38	12

General Attitudes Toward Fertilization

Although users generally have a favorable attitude toward fertilizer, non-users do not rank fertilizer use very high among characteristics of "good farmers." When asked, "Which of the following practices helps most toward making a really good farmer?" farmers gave more than one reason and the replies were ranked as follows:

	—Rating index—	
	Medium users %	Non-users %
He uses more fertilizer per acre	37	16
He pays more attention to soil erosion	34	39
He uses better quality seed	28	17
He has most fertile land to begin with	26	26
He uses better crop rotation methods	22	30
He has more machinery....	20	25
He cultivates more land ...	15	28
He works harder and longer	12	14

More than half of all farmers thought it a good idea to fertilize pastures and grazing lands and most of these were users.

Fertilize pastures and range?	All farmers %	Medium users %	Non-users %
Good idea	58	85	41
Poor idea	11	..	16
Depends	14	11	17
Don't know	17	4	26

Those who thought it to be a good idea said that fertilization would probably improve stand and quality and make growth quicker, but they almost never mentioned increased economic returns as a benefit of fertilizing pasture. It is of interest to note that only 16% of non-users had a definitely negative attitude. The opportunity for more fertilizer use on pastures and forage crops is challenging, since most farmers' attitudes are potentially favorable but few are actually using fertilizer on these areas.

If farmers had a choice of unlimited amounts of manure or commercial fertilizer, over half of all farmers (64%) said they would choose manure.

Farmers who preferred manure most often said they did so because:

"It conditions the soil."

"It lasts longer in the soil."

"Know results through experience."

Farmers who preferred commercial fertilizer most often said they liked commercial fertilizer because:

"It is easier and quicker to apply."

"Soil needs can be supplied accurately."

"It gives plants a quick start."

Farmers who preferred commercial fertilizer but thought it had some disadvantages most often mentioned:

"Cost, too expensive."

"It requires moisture."

About one third of those preferring commercial fertilizer said they did not know of any disadvantages.

Knowledge of Fertilizer

Nearly half (45%) of all non-users said they didn't know what major fertilizer elements their soils needed. Most users thought they knew their needs, and more frequently said they needed all three major nutrients.

	—Per cent of—		
What does your soil need?	Medium users	Low users	Non-users
NPK	27	19	7
N	16	20	15
NP	4	11	6
P	11	14	16
PK	2	..	1
NK	5	8	4
Don't know	22	17	45

A large proportion of farmers apparently do not understand the meaning of the three numbers on mixed fertilizer bags. Over 70% of all farmers gave wrong or partially wrong answers when asked to choose grades which would correct specified plant food deficiencies. When asked what fertilizer to use (given a choice of four widely different grades):

(a) to meet a nitrogen deficiency.
(b) to meet a potash deficiency.

Here's how Southwestern farmers answered:

	All farmers %	Medium users %	Non-users %
Both answers right ...	27	40	16
Both answers wrong ..	59	45	74
Right for N, wrong for K	12	15	7
Right for K, wrong for N	2	..	3

Those who were right on one of the two choices apparently more often understood the first number (N) than the last (K_2O).

. . . And when asked whether 3-12-12 (@$50) or 6-24-24 (@$80) would be the better buy, they answered like this:

	All farmers %	Medium users %	Non-users %
6-24-24	59	73	46
3-12-12	5	5	3
Don't know	35	22	50

. . . Most who chose 6-24-24 said that it was more value for less money, but many also thought that 6-24-24 was better because they needed more of the element.

. . . Southwestern farmers, on the average, fell below the average U.S. farmer in fertilizer knowledge with respect to the questions above. Fertilizer knowledge was closely related to fertilizer use, and the Southwestern farmers are low in fertilizer use.

Farmers' Discussion and Reading Habits

Fertilizer users discuss their fertilizer needs with others more often than non-users.

. . . When asked with whom they talked over fertilizer needs, the county agent was most frequently mentioned by both users and non-users.

Person talked with	Users %	Non-users %
County agents	31	30
Local dealers	19	13
Neighbors, friends	13	12
Soil conservation man ...	11	16
Wife	6	8
Most others	Below 6	Below 8

. . . BUT, farmers talked to different people about different things. Users turned to the agricultural experts with their questions concerning analysis, amount, and when and how to apply fertilizer. They talked over price and amount most often with dealers and family members, and asked neighbors about analysis, amount, and expected results. Dealers and agricultural experts were not often questioned about expected results. The answers which farmers gave here are consistent with those given to other questions throughout the study.

. . . A majority of users (74%) and many non-users (54%) said that these discussions were helpful and led to specific action. Discussions with agricultural experts (county agents, etc.) most frequently led to specific action.

. . . Over half of users and non-users recalled reading something about fertilizer recently. All farmers recalled reading farm magazine articles more recently and frequently than government and extension publications. Most users thought reading was helpful, but only 22% of non-using readers thought so. Although non-users read as much as users, the information is not as clear to them or they consider fertilization less important than other matters.

. . . Only a third (35%) of users recalled seeing or hearing about fertilizer on TV or radio, but nearly half of these thought it helpful to them. Only a fourth (24%) of non-users recalled radio or TV stimulations, and most of these (75%) did not think it was helpful.

. . . Non-users appear not to be highly receptive to what they read, see and hear about fertilizers in mass media. They are more receptive to personal discussions.

All farmers have considerable confidence in county agents and agricultural college publications. Farmers felt that the most practical sources of information ranked as follows (each farmer gave a first, second and third choice):

Source of most practical information	—Rating— All farmers	Medium users	Non-users
County agent	75	73	77
Agricultural college publications	31	33	34
Farm magazines	23	23	21
Neighbors	20	11	24
Local dealers	19	24	17
Manufacturer's salesman	4	5	3
Someone else	12	22	9
TV	2	1	2
Radio	2	3	1
Newspapers	2	2	2

Demonstrations Important

Most farmers, including non-users, said that they and others would be favorably influenced by seeing fertilizer demonstrations. In answer to the question . . .

"Frankly, what effect do you think seeing demonstration plots has on most farmers—that is, on how they fertilize their own crops?"

Southwestern farmers replied:

	All farmers %	Medium users %	Non-users %
Good effect—they see and think	46	38	47
Positive effect—makes them decide	23	36	17
No effect	10	7	13
Negative effect	..	..	1
Don't know	20	18	22

. . . BUT, the majority of farmers (75%) had never tried any kind of experimenting with or plot testing of fertilizer themselves. Of those who did try experiments themselves, about one fifth said the results led to specific action. Over half said the results were helpful but did not lead to specific action. The rest indicated no help from the results.

Apparently most farmers can be favorably influenced by tests they conduct themselves, and more farmers should be encouraged and guided in doing so. (Personal experimentation can frequently be haphazard and lead to wrong, as well as right, conclusions.)

Although farmers' general attitude toward demonstrations was favorable, only 31% of all farmers had ever visited one, and the majority (75%) did not ever know of any nearby.

"Ever visit a demonstration?"

	All Farmers
Yes	31
No	69

"Are there any nearby?"

Yes	25
No	75

Level of fertilizer use was not related to visiting or knowledge of demonstrations, but more effective publicity of well planned demonstrations should encourage better fertilizer usage if more farmers become aware of the results.

Most farmers thought that demonstrations would be better on poor rather than good land, on large plots (10 to 15 acres) rather than small (1 or 2 acres), and on successful rather than unsuccessful farms.

Soil Tests Important

Farmers frequently mentioned soil tests, along with their own experience, as primary means by which they learned their soil needs.

How did you find out fertilizer needs?

	All farmers %	Medium users %	Non-users %
Own knowledge, experience	32	36	27
Soil test	31	43	32
Experimentation, demonstration	16	21	10
Other farmers	12	7	17
County agent or other expert	15	17	15
Reading	3	2	4
School	2	2	2
Other	1	2	..
Don't recall	2	..	4

Although both users and non-users who said they knew their soil needs considered soil tests important sources of information, nearly half of all non-users did not know what their soils needed, and over two thirds of all non-users never had had a soil test.

Has any soil test ever been made on your selected crop acreage?

	Medium users %	Low users %	Non-users %
Yes	52	39	29
No	48	61	71

Soil testing appears to be directly related to level of fertilizer use. Many users who did not have soil tests apparently recognized the need and mentioned their own negligence as a major reason.

. . . BUT low users and non-users often believed soil tests were unnecessary.

About half of fertilizer users with soil tests said they followed recommendations completely, and an additional 24% said they followed recommendations partly. On the other hand, the majority of non-users with soil tests did not follow recommendations, and many could not recall what the recommendations included.

"How did this soil test affect the way you are fertilizing?" (Some users gave more than one answer.)

	All users %	Non-users %
Followed recommendation completely	52	13
Followed recommendation partly	24	4
Did not follow the recommendation	17	78
Did not believe the recommendation	2	2
Confirmed present usage	2	..

Although 56% of all users never had a soil test, all users in general rated soil tests quite high among factors affecting their decision on fertilizer amount and analysis, but not as high as their own judgment (trial and error).

"How did you decide to use this amount and analysis?"

	Analysis %	Amount %
Trial and error, own judgment	37	45
Soil test recommended	21	14
Generally used by others nearby	14	9
Dealer recommended	9	8
Recommended by agricultural expert	13	9
Crop signs indicate need	12	5
Read in agricultural publications	4	2

There is considerable opportunity for more effective soil testing programs in the Southwest, by means of . . .

. . . Greater efforts to overcome user's own negligence through faster service, more encouragement, more publicity.

. . . More encouragement, assistance, and solicitation to non-users.

. . . Recommendations in clearer and simpler terms.

Users' Fertilization Practices

Slightly over half of users said that they started thinking about their 1956 fertilizer needs prior to August, 1955, but a fourth of them still had not decided in February 1956.

Fertilizer application rates were below 250 lb. per acre for 67% of users, and below 150 lb. per acre for 39%.

About half of all applications were as preplant, one fourth as starters and one fourth as sidedressings.

Satisfaction with and Changes In Fertilizer Practices

Most fertilizer users were highly or partially satisfied with results on their 1956 crop. Those who were partially or highly dissatisfied (34% of users) most frequently blamed weather conditions and low acre yields, and very seldom associated fertilizer use with poor crop results.

Nearly half of medium users changed their 1957 fertilizer practices from 1956 but very few non-users made a change.

"This year are you fertilizing any differently than last year?"

	Medium users %	Low users %	Non-users %
Yes	47	34	8
No	53	66	92

. . . And those who reported making a change said the change involved the following:

	Medium users %	Low users %	Non-users %
Using more commercial fertilizer	46	14	33
Using less commercial fertilizer	27	57	17
Using different elements or analysis	12	..	..
Change in procedures	15	..	8
Using a high analysis	4	5	..
Using organic fertilizer	..	..	17
Planting a different crop this year	7	24	25

It is significant that medium users and non-users more frequently increased their rates of fertilization, while low users more often used even less than they had before. Although low users were apparently not highly dissatisfied with their previous results, they were probably not convinced that the fertilizer helped much—use of meager rates likely did not give convincing results, and weather conditions and money problems were additional deterrents.

Why Isn't More Fertilizer Used?

In the Southwest, farmers who did not use any fertilizer on their most important 1956 crop most often said that "weather conditions" were not suitable for its use.

Farmers' reason for NOT using any fertilizer in 1956 (more than one answer from each farmer).

	Frequency %
Weather conditions not suitable	45
Not enough money	35
Not necessary, crop just as well without it	25
Prefer animal or green manure	10
Use some other farming practice in its place	5
Don't approve of using commercial fertilizer	5
Others	Below 5

. . . BUT, non-users who had used some fertilizer previously or on some other crop, but not on their major 1956 crop, rated lack of money above weather conditions as a deterrent.

The three major reasons for lack of fertilizer use by all non-users, in order of frequency mentioned, were . . .

. . . Weather conditions.

. . . Lack of sufficient money.

. . . Did not believe fertilizer needed.

. . . AND any program of fertilizer promotion in the Southwest must be developed with emphasis in these areas.

Most current low users were not too concerned over possible bad effects from using double their present rate of fertilizer, though medium users were less optimistic, and the most users in all levels thought effects would depend upon the weather.

Users were asked, "What would happen if you used twice your present amount?"

Non-users were asked, "What would happen if you used 500 lb. per acre of commercial fertilizer?" (Respondents gave more than one answer.)

	Medium users %	Low users %	Non-users %
Good effects			
Increase yield	13	33	10
Better crops	7	4	2
Faster start	..	2	1
Other good effects	2	4	..
Bad effects			
Burn out crop	17	10	45
Waste money	13	2	..
Other harm to crop	2	2	2
Harm to soil	2	..	2
Provisional effects			
Depends on weather	41	43	25
Other provisional effects	4	1	1

Very few non-users thought that an application of 500 lb. fertilizer per acre would benefit their crops. Most felt that burning effects would be severe.

Slightly under half (48%) of all farmers said that they certainly or probably would borrow money to buy fertilizer, if they did not have enough money available and could borrow at a reasonable rate of interest . . . BUT non-users were less receptive than users to the idea of borrowing.

	All farmers %	Medium users %	Non-users %
Certainly would borrow	27	50	12
Probably would borrow	21	24	19
Certainly would not borrow	13	11	15
Probably would not borrow	39	15	53

Non-users who would not borrow frequently said that the returns from fertilizer would not justify the risk of a loan. Relatively few said that they did not believe in commercial fertilizer.

Although 53% of all farmers were classified as non-users, only 8% of all farmers said that they would not use fertilizer if plenty of cash was available.

In comparing what farmers said they would use with the 1956 use levels discussed previously in this summary, it is apparent that Southwestern farmers say they would use over double the total amount of fertilizer which was consumed in four southwestern states during 1956, providing plenty of ready cash were available.

A greater effort is needed to encourage more banks and other lending institutions to make provisions for fertilizer in their production loan programs. . . . BUT availability of credit alone will not stimulate Southwest farmers to use proper amounts of fertilizer, because many believe that lack of moisture will limit fertilizer values, and too many indicated a lack of conviction that fertilization was really necessary . . . Nevertheless . . .

. . . The study reveals information on potential use never before available, and strongly suggests certain important actions which can help increase the use of fertilizer on a sound basis in the Southwest.

Oregon Station Plans Range Field Day

BURNS, ORE.—A new era in range management—more grass, more beef, more profit—will be previewed June 14 at the 1958 Range Field Day of the Squaw Butte-Harney Branch Experiment Station here.

Easy profitable methods of growing grass instead of sagebrush will be reported by D. N. Hyder and F. A. Sneva, range conservationists at the station. Doubling yields of crested wheatgrass through proper fertilizing of range land, control of sagebrush and rabbitbrush with chemical spraying and a new method of forecasting range production will be reviewed.

Mr. Hyder says sagebrush spraying will return $3 for every $1 spent if the range is managed properly for the first year or two after spraying. Correct timing of the spray will control both sagebrush and larkspur with one application, he said.

INSECT NOTES

(Continued from page 5)

exposures. No general hatch observed as yet. This species in all of northwestern Minnesota is mostly in eye spot stage with an occasional pod that is in late coagulation. Hatching in hay fields and pastures could take place very soon on lighter soils in this area. Red-legged grasshoppers (Melanoplus femur-rubrum) and migratory grasshoppers (M. bilituratus) are mostly in coagulation stage.

In southern Minnesota, eggs of the red-legged grasshopper (M. femur-rubrum) were still in the clear to coagulation stages. Meadow grasshoppers of non-economic species were observed in ditch banks in southwestern district.

More Corn Borers in Iowa Fields This Year

AMES, IOWA—Central Iowa corn borers are ahead of 1957. On May 22, 84% of borers had pupated in Boone County and 64% at Ankeny. In Kossuth County on May 20, 10% of the borers had pupated, while in Henry County on May 21, 40% were pupated. At Ankeny, 1 corn borer moth was found in the light trap on May 22.

Field corn appears to be in about the same stage of growth in all parts of the state. Tallest corn averages 8 to 10 inches. With normal rainfall and temperatures, corn and borers will be synchronized in all parts of Iowa.

Corn flea beetles were observed in corn in Keokuk, Washington and Henry counties. Damage was slight. The major danger is transmission of Stewart's wilt. The flea beetles are small, black actively-jumping insects. Chemical control is probably not needed except in sweet corn.

Cutworms are reported attacking corn in the Missouri River bottoms.

Glassy cutworms destroyed a field of corn in Fayette County.

Wireworms were reported working in Boone County. If replanting is necessary, treat soil.

Corn root aphids were reported as extremely abundant in corn following grain sorghum in Mills County.

Bean leaf beetles are present in alfalfa, clover and soybeans throughout the southern half of Iowa. Some bean fields in Monona County were destroyed by the feeding of these beetles this week, others were sprayed with good results.

Pea aphids ranged 15-25 per sweep, alfalfa plant bugs (nymphs and adults) 2-3 per sweep and ⅛ grown alfalfa loopers 1 to 2 per sweep in southeast Iowa. Spittle bug froth masses are more obvious in eastern Iowa this week but populations still average 1 per square foot or less in clover and alfalfa.

Cankerworms are attacking elms and unsprayed apple trees in the southeast quarter of Iowa. Worst damage was seen in a timber pasture along Highway 69 north of Ankeny. Individual trees in Ankeny, Des Moines, Monroe, Oskaloosa and Mt. Pleasant showed varying degrees of defoliation. Some trees in Oskaloosa have been sprayed with good results. —Harold Gunderson.

New Jersey's Bugs Getting Good Start

NEW BRUNSWICK, N.J. — Most growers have controlled the European red mite satisfactorily. The pink and petal fall applications of miticides have done a good job. No observations of codling moth entry as of May 20. Curculio injury has been picking up since May 16.

European apple sawfly will be causing "wormy" apples to appear in home orchards in Bergen, Essex, and Passaic areas very soon. Control should have been applied at petal fall.

Apple leaf miner larvae are now fairly easy to find in "problem" orchards of 1957. Blotches are brownish and visible only on undersides of leaves. Small larvae and black excrement specks are visible through a glass. These observations are from Atlantic and Cumberland counties.

In unsprayed orchards and in blocks which were not covered before the rainy period scab is now fruiting on leaves in the trees.

On peach, curculio injury is noticeable on orchard edges. Curculio activity should now be near peak in South Jersey. A spotting of one surface of cherry fruit was first thought to be spray injury but we have since found a similar condition on unsprayed trees.

Curculios are now quite active in blueberry fields. They are most abundant in Weymouths and Cabots but can also be found on Junes and Earliblues. If one oviposition scar can be found in 100 fruit clusters, it is advisable to treat for this insect.

Flea beetles heavy on potatoes in Central New Jersey. Still early for corn borer in central New Jersey.

Beetles moving back into asparagus fields now. Populations reported lower than 1957. One report of cutworms made.

A disease, referred to as stunt or wilt is showing up in lettuce again this year. Young plants wilt, and older plants are stunted. The heart of the stem, below soil line, turns brown. The fungus associated with the trouble is a water-mold (Pythium) and this year's weather was good for water-molds. Previously in New Jersey reports in 1945, 1948, 1952 and now 1958.—Spencer H. David, Jr.; Leland G. Merrill, Jr.; and William E. Collins.

CO-OP

(Continued from page 1)

ties to handle 15,000 tons of anhydrous ammonia will be installed. Present storage capacity at the plant is 3,000 tons.

Mr. Cowden, who is president and general manager of Consumers Cooperative Assn. of Kansas City, as well as president of CFCA, said the increased capacity is necessary to meet the growing requirements of farmers throughout the Midwest who are affiliated with the cooperative organizations that distribute the plant's products.

CCA distributes 75% of the Lawrence production. The other 25% is handled through the Central Farmers Fertilizer Co., Chicago, a federation of 15 regional cooperatives.

"The use of nitrogen fertilizers has increased tremendously since the plant went into production in 1954," Mr. Cowden said. "Although we have had a good operating year, the plant was unable to supply demands of farmers through the peak spring season."

When the new facilities are installed, Mr. Zurbuchen pointed out, the annual volume of the plant in end products will be 43,700 tons anhydrous ammonia, 90,000 tons ammonium nitrate and 10,400 tons nitrogen solutions.

Plans call for completion of the new facilities by Nov. 1, 1959.

INADVERTENT ADVERTISING—Last fall the owner of this wheat field in northern Indiana had 8-8-8 liquid fertilizer applied at the rate of 535 lb. an acre before sowing it to wheat. This spring after inspecting his wheat field he approached his fertilizer dealer with fire in his eyes.

"The field is all streaked," he declared. "Your man must have skipped half of it."

The dealer agreed to look at the field which he knew had always had a low level of fertility. What he found confirmed his suspicion. The streaks were caused, not by the applicator missing any of the field, but by generous over-lapping. The soil where the wheat was tallest and greenest had received 1070 lb. an acre!

PESTICIDE RESEARCH

(Continued from page 1)

good. The cause of this division of common forces has been due in large part to the lack of research funds which can be devoted to, as this source defines it, "good basic research."

This source pointed out that formulators may have under this measure an open gate to broad research possibilities wherein they can through use of more efficient attractants provide a quicker acting agent to eliminate destructive insects, but at the same time be of such short useful presence that they would have but limited effect on the lives of animals, birds, fish and predator insects.

In short, what this source is saying is that the guide lines for the pesticidal chemical industry formulators is one for quick sudden death for the destructive pests and disappearance of the causative poisons, so that the cumulative effects of the chemical poison will not be carried over to other objects which are not intended for elimination.

This information of the attitude of responsible U.S. government officials in regard to this pending measure can be little less than encouragement to the entire chemical industry which has been the innocent whipping boy of the protective societies and others who see in the use of economic poisons hazards to the balance of the farm economy.

This measure if adopted and used for constructive purposes—such as "good basic research" as defined by this official of the U.S. government — may well be the bridge between the dissident groups —whose basic goal is naturally of common good for all.

This provision of funds for this type of research bridges a gap which has existed between the U.S. Department of Agriculture and Department of Interior. USDA is designed to maintain basic food and fiber production not only for the maximum returns for the farmer but to relate maximum production for lower costs to the farmer so that costs of ultimate products may be available.

Up to this time the Department of Interior people have been guided by stiff legal requirements to protect fish and wildlife.

This legislative bridge for research may be the final meeting ground of both these government agencies whose goals have been divided by legalistic flats, sentimental in purpose and far removed from realism.

Oregon County Reports On Fertilizer Consumption

PORTLAND, ORE. — Farmers in Benton County (Ore.) spent $571,979 for commercial fertilizers in 1957, reports Harold Werth, county extension agent. One dollar out of every $15 received by farmers from the sale of agricultural products was used to purchase fertilizer of one kind or another. Consumption increased 24% over 1956.

The use of nitrogen accounted for more than 70% of Benton County's 1957 commercial fertilizer bill. Half of the 3,084,484 lb. of actual nitrogen used was applied in the form of sulphate of ammonia. Ammonium nitrate, 16-20 and anhydrous ammonia supplied most of the balance of nitrogen used.

Walnut Husk Fly May Spread, Entomologist Says

BERKELEY, CAL. — The walnut husk fly, a serious pest in Southern California, may develop into a widespread problem farther north, warns Martin M. Barnes, associate entomologist, University of California, Riverside.

Spot infestations recently found in walnut orchards, of Napa, Mendocino, Santa Clara, Stanislaus and Kern counties may spread to adjacent areas, Mr. Barnes believes. His studies, using radioactive phosphorus as a label, have shown that the flies can range over a wide territory in a short time.

Large numbers of husk flies in a natural population were tagged by using a radioactive chemical bait. Some were trapped up to a mile from the tagging point in three weeks. Mr. Barnes estimates that in a season the insect can probably fly several miles.

OREGON FIELD DAY

PORTLAND, ORE.—A field day will be held June 20 at the Red Hills Experiment Station, Oregon City, Ore., under direction of Jack McDermid, superintendent, and in cooperation with Oregon State College. The event will get under way at 9:30 a.m. and those in attendance will inspect fertility plots, forages, alfalfa, sub clover, lotus, ladino and New Zealand plantings.

Dr. John H. Lilly

John H. Lilly Joins Amherst College Staff

AMHERST, MASS.—Dr. John H. Lilly, Iowa State College entomologist, will join the staff of Amherst College as head of the department of entomology and plant pathology, a new department in the college of agriculture. The work will include teaching, extension and experiment station research in both fields, and in addition further activity in the shade tree and seed testing laboratories on the Amherst campus, and the arboriculture work at Amherst and Waltham.

The new department is completely in the college of agriculture, whereas in the past, the experiment station and extension activities have been in agriculture, but most of the teaching has been in arts and science.

Dr. Lilly's work at Iowa State has been prominent in the control of corn borer and other agricultural pests in the middle west. His new responsibilities in Massachusetts are to begin about the middle of June.

USDA Personnel Receive Superior Service Awards

WASHINGTON—Superior Service Awards recently were presented to 127 employees of the U.S. Department of Agriculture in special ceremonies here. Among those receiving the awards were:

Joseph A. Beaulieu, Agricultural Research Service, Gloversville, N.Y.—"For unusual initiative and leadership in directing a plant pest control operation requiring strict adherence to safety and accuracy and for his ability to effectively and rapidly train inexperienced workers." An agriculturalist with the Plant Pest Control Division, Mr. Beaulieu is associated with gypsy moth control work.

Dr. Harold H. Flor, Agricultural Research Service, Fargo—"For plant disease research that has led to the development of the important concept that genes for virulence in flax rust contest directly with corresponding defensive genes in the flax plant." Dr. Flor is research plant pathologist at the North Dakota Agricultural Experiment Station.

Dr. W. G. Reed, Agricultural Research Service, Washington — "For promulgating, implementing and administering the Insecticide, Fungicide and Rodenticide Act of 1947 and coordinating the requirements of that statute with the Pesticide Chemicals Amendment to the Food, Drug and Cosmetic Act." Dr. Reed retired last Aug. 31 after 28 years with USDA. He became head of the Pesticide Regulation Section in 1953.

New Fertilizer Plant

MOBERLY, OKLA.—The Boss Fertilizer Co. is erecting a 150 ton capacity fertilizer plant here.

California Winter Quarter Sales Show Small Decline

SAN FRANCISCO—Sales of commercial fertilizers in California declined between the winter quarter of 1957 and the first three months of 1958, according to a report of the bureau of chemistry of the State Department of Agriculture. This was the second quarter in a row to show a decline.

A total of 264,270 tons sold between Jan. 1 and March 31 of last year compares with 253,545 for the same period in 1958.

The dominant position of dry mixed fertilizers as the leader of this group was seriously challenged for the first time by ammonium sulfate. The former class of chemicals held a slim lead of 58,988 tons to 57,549 as the most popular fertilizer. Last year the dry mixed group sold almost the same amount—58,246 tons—and ammonium sulfate was behind at 42,418.

Ammonia solution 20-0-0 dropped between the two winter quarters from 35,532 tons to 22,789. Usually ammonia solution has stuck close to the dry chemicals in sales, sometimes surpassing them.

Five other chemicals were closely grouped next in line. In order were superphosphate normal, down from 19,035 to 15,626 during the quarter; calcium nitrate, up from 14,187 to 14,971; ammonium nitrate, down from 16,647 to 14,787; ammonium phosphate sulfate 16-20-0, down from 17,373 to 14,744; and anhydrous ammonia, up from 11,823 to 12,719.

Mixed fertilizers liquid registered a decline from 11,298 to 8,872; urea was down from 8,342 to 6,122; sewage sludge activated down from 5,168 to 3,849, and ammonium nitrate solution 20-0-0 down from 4,702 to 3,307.

A more detailed analysis of dry mixed sales shows that a loss from 8,008 tons to 5,447 pushed last year's top place holder, 17-7-0, to second place to change positions with 10-10-10 which dropped only from 6,621 to 5,838.

Most of the other chemicals remained in the same relative positions: 10-10-5 dropped from 4,397 to 3,706; 8-8-4 from 3,665 to 2,949; 15-8-4 up from 2,034 to 2,775; 14-14-7 up from 10th to sixth place with a gain from 1,010 tons to 1,468; 16-20-0 dropping slightly from 1,534 to 1,455; 6-10-4 dropping from 1,822 to 1,331; and 4-4-2 from 1,916 to 1,286.

Agricultural minerals, more irregular in their movements, declined between the two winter quarters from 241,153 to 207,421. The dominant gypsum fell from 221,955 to 189,644, with smaller declines among other minerals: sewage sludge almost level at 8,437 and 8,286 for the two quarters; soil sulfur dropping from 3,654 to 2,760; and magnesium carbonate from 1,656 to 1,172. The only significant gain was registered by lime-sulfur solution which almost doubled its sales from 679 tons to 1,297.

California Firm Begins Operations

TULARE, CAL.—Faabs Fertilizer Co. began operations here recently, producing fertilizers and insecticides. Directors of the new firm are Dick W. Anderson of Route 2, Box 215, and Ray Franks of Route 1, Box 706, Tulare; and Phillip Swearingen, Route 3, Box 708, Visalia.

Croplife®

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Western states.

AFTER 41 YEARS . . .

Fishing Ahead for Retiring "Bo" Koehler

FROM coal mine to cum laude, chemist to plant manager, aspirins to chemicals for the farm, and now for a life of ease. That's a brief summary of the career of "Bo" Koehler, Monsanto Chemical Company's 41-year veteran who has left work days to the workers and has started receiving his mail in Sarasota, Fla., where he intends to spend the summer.

"Bo" Koehler

Confronting retirement like a college sophomore looks toward summer vacation, "Bo" is eager for what's ahead and unmindful of the past. He has swapped the chemical business and his position as assistant to the director of marketing of Monsanto's Organic Chemicals Division, for a what-comes-naturally existence. He expects to satisfy some lifelong curiosities and whims through travel, reading and other interests.

The change of pace marked the finish of his adventure in the chemical industry which began with his first day at Monsanto in the spring of 1917 ("a time when English-speaking chemists were tagged second rate"); continued through his elevation to head of the aspirin department in 1917—in time for him to supervise the making of the company's second batch of that headache powder; saw him become manager of Monsanto's Norfolk, Va., plant at 30 and eventually brought him the title of assistant to the Organic Chemicals Division's director of marketing and a reputation as an expert on agricultural chemicals. His influence in the trade has been considerable, he having been prominent in the activities of the National Agricultural Chemicals Assn. for many years, serving on its board and being present at its meetings in many parts of the country.

Mr. Koehler was born in December, 1895, in Hazleton, Pa., then a town of about 10,000 German, English and Welsh people. It was a center of anthracite coal mining and the business hub for numerous "patches" or tiny settlements of 25 to 50 families living adjacent to the many small mine shafts.

His father, who died when Bo was 10, was mechanical superintendent in the largest mine in the area, and was of German ancestry as was his mother. He recalls his father's having a dark mustache and wearing a beard during winter to protect his face from freezing blizzards and below zero temperatures. His mother, a small, blonde-haired, blue-eyed woman who never stopped her "homework," died when he was 17, having successfully reared Bo, four brothers and three sisters.

The Koehlers lived in a "company house" near the mines with four other families until Bo was eight. It was home and, to them, there was no place like it, despite the coal range in the kitchen, a pot-bellied stove which did wonders for the dining room but ignored the rest of the house, the cold water spigot across the yard, and a breezy outhouse "with enough cracks to allow the snow to blow through freely."

Outside the classroom, young Koehler delighted in exploring mine caves and visiting the lower workings of the mines to chat with the men. A favorite pastime was riding in a beer truck behind two gray horses. The rig belonged to a neighboring brewery.

Inside the classroom, Bo was top man. As valedictorian of his high school class, he had a choice of scholarships and turned down three other schools in favor of Rutgers University. To earn spending money during the four years of college, he tutored, worked in the campus bowling alley, spent one summer in an iron foundry and another as a ditch and cellar digger extraordinaire. But, happily, there was a job as a stocking salesman, too.

Continuing his earlier school success, he graduated cum laude with a bachelor of science in chemistry. Having taken a job at Monsanto starting May 13, Koehler had to leave Rutgers before commencement and head for St. Louis. He received his diploma in absentia and was initiated into Phi Beta Kappa at the city's Washington University.

Three years later, in 1920, he was married. The girl was a high school sweetheart whom he'd been "keeping in close touch with" since his junior year back in Hazleton. It had begun with his sharpening a few of her pencils. Soon he was doing her math problems for her, and then she popped the question: Would he or wouldn't he be her guest at the Senior High School Picnic? He would. Today the Koehlers have a son to be proud of—young John W. who is an internist and heart specialist in Joplin, Mo.—and two grandsons.

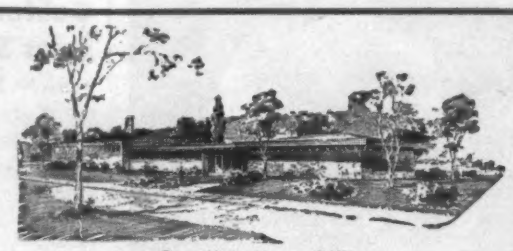
As a tireless and ambitious chemist with a reputation for being able to produce, his responsibilities multiplied. In 1945, when Monsanto began making DDT, Mr. Koehler became interested in agricultural chemicals. He visualized the impact they could have on the world and their increasingly important role as the world's population increased. In this field he saw hope for the "have not" nations, a way through chemicals to reclaim soil and provide proper food for their people.

Says he, after more than a decade of experience in this field, "Thanks to chemicals, the American farmer today has better soil conditions, better types of food crops and food merchants have better control of ready-to-ship foods. The farmer is producing more per acre with less labor and less cost and producing better quality and more nutritious foods of all kinds. This is why we, at present, have a food surplus problem. But our ability to produce surpluses now may mean no starvation and no food shortage in 20 years.

"The agricultural chemical market will grow because all the old problems e.g., pest and weed control, are not yet completely licked and new problems seem to arise yearly. In a recession these chemicals are even more important to the farmer because the profits so hard to come by may be eked out with cheaper, easier methods to do a farming job.

"Probably chemical weed killers have made the greatest recent change in farmer operations by almost eliminating costly, time consuming hand weeding in much of our farming areas, resulting in better yields, better quality and lower costs."

Bo retires having helped to demonstrate the importance of science to farming, having seen Monsanto off and running with a successful line of farm chemicals of its own. He is confident that, with the marriage of chemistry and agriculture, our farms will continue to yield the crops demanded in increasing quantities year after year.



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Croplife

BPA — *Member of Business Publications Audit*

NBP — *Member of National Business Publications*

CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is $5 for one year ($8 a year outside the U.S.). Single copy price, 25¢.

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Managing Editor

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MEETING MEMOS

June 17-19—Second Annual Turfgrass Conference and Tour, Tidewater Research Station, Holland, Va.

Aug. 4—National Joint Committee on Fertilizer Application, Annual Meeting, Purdue University, Lafayette, Ind.

Aug. 4-8—American Society of Agronomy, Annual Meeting, Purdue University, Lafayette, Ind.

EDITOR'S NOTE: The listings above are appearing in the Meeting Memos for the first time this week.

June 4—Executive Committee, Fertilizer Safety Section, National Safety Council, Hotel Roanoke, Roanoke, Va. Time: 9 a.m.

June 5-6 — Pacific Northwest Grain Dealers Assn., Annual Convention, Davenport Hotel, Spokane, Wash.

June 9-11—Association of Southern Feed & Fertilizer Control Officials, Heart of Atlanta Motel, Atlanta, Ga., Bruce Poundstone, University of Kentucky, Lexington, Ky., Secretary-Treasurer.

June 12-14 — Manufacturing Chemists' Assn., 86th Annual Meeting, The Greenbrier, White Sulphur Springs, W.Va.

June 15-18—National Plant Food Institute, Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

June 16-17—Rural Development Program Conference, Peabody Hotel, Memphis, Tenn.

June 16-19—Western Society of Soil Science, Logan, Utah.

June 17-19—American Grassland Council's Annual Meeting, in conjunction with American Dairy Science Assn., Raleigh, N.C.

June 24 — West Virginia University Agronomy Field Day, Reymann Memorial Farms, Wardensville, W.Va.

June 25-27—Pacific Branch, Entomological Society of America, San Diego, Cal.

June 28—Del-Mar-Va Peninsula Fertilizer Assn., Annual Meeting, Ocean City, Md.

July 8-10—Pacific Northwest Plant Food Assn., Ninth Annual Regional Fertilizer Conference, Pocatello, Idaho.

July 11-12—Pacific Northwest Section, American Society of Range Management, Summer Meeting, Kamloops, B.C.

July 13-16—American Society of Agronomy, Northeast Branch, Cornell University, Ithaca, N.Y.

July 13-15—Plant Food Institute of Virginia and North Carolina, Summer meeting, Cavalier Hotel, Raleigh, N.C.

July 17-18—Southwest Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

July 24 — West Virginia University Agronomy Field Day, Ohio Valley Experiment Station, Point Pleasant, W.Va.

July 29-30—Annual Fertilizer Industry Conference Sponsored by the Alabama Polytechnic Institute Experiment Station; Black Belt Substation near Marion Junction, Ala. (July 29) and Prattville, Ala. Experiment Field (July 30).

July 30—Kentucky Fertilizer Conference, Greenville, Ky.

Aug. 20-24—Canada Fertilizer Assn. (formerly Plant Food Producers of Eastern Canada), Annual Meeting, Manoir Richelieu, Murray Bay, Quebec.

Sept. 4—Grassland Field Day, Rutgers University Dairy Research Farm, Beemerville, N.J.

Oct. 14-15—Western Agricultural Chemicals Assn., Annual Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Oct. 20—Annual Sales Clinic of Salesmen's Assn. of the American Chemical Industry, Inc., Roosevelt Hotel, New York.

Oct. 20-21—Fertilizer Section, National Safety Council, annual fall meeting, La Salle Hotel, Chicago, Ill.

Oct. 22-24—Pacific Northwest Plant Food Assn., Annual Meeting, Gearhart, Ore., Leon S. Jackson, P.O. Box 4623, Sellwood-Moreland Station, Portland, Ore., secretary.

Oct. 28-29—Northwest Garden Supply Trade Show, Masonic Temple, Portland, Ore.

Oct. 29-31—Fertilizer Industry Round Table, Sheraton Park Hotel, Washington, D.C.

Oct. 29-31—National Agricultural Chemicals Assn., 25th annual meeting, Bon Air Hotel, Augusta, Ga.

Nov. 9-11—California Fertilizer Assn., 35th Annual Convention, Ambassador Hotel, Los Angeles, Sidney H. Bierly, 475 Huntington Drive, San Marino 9, Cal., General Manager.

Nov. 18-20—Washington State Weed Conference, Moses Lake, Wash.

Nov. 24-25—Entomological Society of America, Eastern Branch, Annual Meeting, Lord Baltimore Hotel, Baltimore.

Dec. 1-4—Entomological Society of America, Annual Meeting, Hotel Utah, Salt Lake City.

Dec. 3-5—Agricultural Ammonia Institute, Annual Meeting, Morrison Hotel, Chicago, Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 9-11—Chemical Specialties Manufacturers Assn., Annual Meeting, Commodore Hotel, New York.

Dec. 17-18—Beltwide Cotton Production Conference, Rice Hotel, Houston, Texas, sponsored by the National Cotton Council.

Jan. 20-22, 1959—California Weed Conference, Santa Barbara, Cal.

CALENDAR FOR 1958-59

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University Honors Maurice H. Lockwood

STORRS, CONN.—Maurice H. Lockwood, vice president of International Minerals & Chemical Corp., Chicago, was one of two distinguished alumni honored by the University of Connecticut in ceremonies here on May 24.

Mr. Lockwood, a member of the class of 1921, is well known in the fertilizer industry, having served as president of the old National Fertilizer Assn. in Washington, D.C. and also as chairman of its board of directors. Before becoming an official of the old NFA, Mr. Lockwood was manager of the plant food division of Eastern States Farmers Exchange for 20 years. He is a native of New Britain, Conn.

With Mr. Lockwood, the University of Connecticut also honored George H. Hollister, formerly president of the American Institute of Park Executives and prominent in New England civic organizations.

North Carolina Tonnage

RALEIGH, N.C.—March fertilizer shipments in North Carolina totaled 279,057 tons, compared with 314,179 tons in March, 1957. Shipments during the first nine months (July-March) of this fiscal year amounted to 637,455 tons, a reduction from 751,008 tons in a corresponding period a year earlier.

NEW DIRECTOR

NEW YORK—The board of directors of American Potash & Chemical Corp. has increased the number of directors from nine to ten and elected Charles R. Lindsay, III, a director and vice president of the company. Mr. Lindsay is president of Lindsay Chemical Division of American Potash.

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of $11 per column inch.

All Want Ads cash with order.

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SALES REPRESENTATIVE FOR NITROgen producer. Excellent opportunity. Agricultural education. Age 25 to 40. Location Iowa, Missouri. Three to five years' experience selling to fertilizer manufacturers. Salary based on experience. Address Ad No. 3786, Croplife, Minneapolis 40, Minn.

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FOR FAST ACTION AND RESULTS try Croplife's CLASSIFIED ADVERTISING

TEXAS LEAFLET

COLLEGE STATION, TEXAS—A leaflet entitled "Texas Guide for Controlling Insects and Diseases on Fruits and Nuts" has been issued by the Texas Agricultural Extension Service.

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For greater yields, fewer complaints stress early production of cotton!

Toxaphene Is the Keystone of a Successful Cotton Insect Control Program In Any Area

Cutworms, thrips, fleahoppers, overwintered boll weevils—ignored by many cotton farmers—can take the profit out of a crop early in the season, leaving the way open for hard-to-control infestations that may get out of hand later in the year.

Experts stress the value of early cotton production. They say a crop that matures early is money in the bank, leaves the farmer free to concentrate on a "bonus" from a profitable top crop. *Toxaphene is the indispensable insecticide—the keystone—for a well-planned insect control program because it kills all major cotton insect pests, helps keep fields free of infestations that can develop into real trouble in July and August.*

Farmers who follow a toxaphene program become repeat toxaphene customers—and for good reason! Toxaphene-treated fields produce consistently high yields year after year. Successful cotton growers tell us they make toxaphene the keystone of their insect control program.

NX57-2

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